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THE SPHERE, MAY 9, 1942
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Vol. CLXIX No. 2207 WITH WHICH IS INCORPORATED THE GRAPHIC MAY 9 1942

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Volume CLXIX No. 2207

The SPHERE, London, May 9, 1942

THE SPHERE

With which is incorporated "THE GRAPHIC"

The Empire's Illustrated Weekly

AUSTRALIA'S REPRESENTATIVE IN LONDON: DR. H. V. EVATT, WHO HAS COME FROM AUSTRALIA TO ATTEND MEETINGS OF THE WAR CABINET IN LONDON, AND TO REPRESENT THE COMMONWEALTH ON THE PACIFIC WAR COUNCIL

Dr. Evatt is the Australian Minister of External Affairs (or, as we might say, Foreign Secretary) and Attorney-General; he has recently been on a mission to the United States. A few days ago he arrived in London as the accredited representative of the Commonwealth Government at the meetings of the War Cabinet and the Pacific War Council.

Dr. Evatt is a constitutional lawyer of eminence in his own country, and a keen Labour adherent. He is forty-eight years of age, and was a Judge of the High Court from 1930 to 1940. He first received office on Mr. Curtin's accession to power last year. This picture was taken during his first visit to Mr. Winston Churchill at No. 10, Downing Street

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A WAR NEWSLETTER —No. 140

1, NEW OXFORD STREET, W.C.1.

The Battering Match Again.—With the resumption by the Nazis of "reprisal raids," the whole question of the night bombing of cities comes up again. It is unlikely that this issue of the "Newsletter" will catch the eye of an historian thirty years hence. But, if it should, it will relieve my conscience (wherever it may then be flitting in Eternity) that a contemporary record, honestly compiled, of one man's views on this hateful, imbecile war expedient should *stand* without fear or favour. These are the main points in my record: (1) Even in 1942 it is clear that, in the height of the fury of war, the conscience of mankind is uneasy about it. (2) If this war is not to be once more "fought in vain," it is quite certain that a generation hence the human race must have achieved so great an advance in its hatred of war that it will condemn as obscene and utterly barbarous the practice of bombing cities at night and will consign it to perdition without reference to, or remembrance of, the justifications of this belligerent or that in 1942. (3) In that general condemnation, Posterity will *not* remember (*a*) that Germany began it; (*b*) that Britain would never have ventured upon it first; (*c*) that Britain adhered strictly to the policy of attacking only military objectives, by crews carefully trained to find those targets; (*d*) that Germany indulged in indiscriminate terror-and-destruction raids for their reprisal value or effect on civilian morale; and allowed half-trained crews to "practise" on such targets. (4) Posterity will probably remember a casual threat in a Nazi newspaper that German "reprisals" would take the form of working methodically through *Baedeker*, battering down one by one the "three-starred" items of chief antiquarian interest in Britain. That threat puts the imbecility in all its naked lunacy very aptly for Posterity (with its 1972 opinion of the barbarity and absurdity of war). (5) Posterity will have forgotten that, in 1940, when Britain was weak, Germany battered down British cities, gloried in the work of destruction, and "saw that it was good." And Posterity may quite probably remember that in 1942, when Britain was in a position to take the offensive in the air, while Germany was heavily preoccupied in Russia and the Near East, Germany made the declaration that "the use of bombers for battering cities was imbecile and wasteful, and that bombers should only be employed to co-operate in land and sea attack and defence." We must accept the possibility of this reading of history in 1972. History is like that. It is no exact science. It remembers only what suits its conscience, mentality and planned "argument." (e.g., Froude, *passim*, or Macaulay).

A Record for Posterity.—And, to conclude, let us marshal the salient facts of the whole matter. (1) There is no such thing as *precision bombing*. Night bombing (like history) is not an exact science. "Accidents will happen" in the best regulated squadron. (2) If an "accident" happens, and *one* baby, or one corner of one historic building on the fringe of an armament factory or other legitimate target should suffer, that accident gives to the enemy as fair and just an excuse for a charge of barbarism as if it were 100 babies or *all* Nuremberg—or Bath; and, of course, a reasonable excuse for the imbecility of a reprisal battering match. (3) Night bombing is, even to our 1942 mentality, a hideously "dangerous game"; and our conscience *is*, quite definitely, uneasy about it. (4) But, at this juncture, it is not only poetic justice, but quite certainly accepted by the bulk of the nation as essential policy for Britain; the chief method by which we can come to Russia's aid and create a two-front war in her desperate need, and reduce the flow of Nazi armaments in our own struggle for survival on land and sea and in the air. In all these circumstances (practical and theoretical), dignity, sense of humour, sense of proportion and logic cry out to us to conduct these operations grimly and in silence, neither justifying nor excusing our own bombings of enemy cities nor squealing at or condemning as crimes the enemy's counterblows. For *what's the good?* We are committed to a hideous policy which gives to a criminal adversary every handle which barbarity and ruthlessness could wish to turn; and a generation hence there will be no jury in Christendom capable of listening to or weighing the contemporary special pleadings of the litigants on either side.

THE ARRIVAL OF THE U.S. AMBASSADOR AND ADMIRAL STARK IN ENGLAND LAST WEEK

Admiral H. R. Stark, Commander of the U.S. Naval Forces operating in European waters, seen as he was greeted by Admiral of the Fleet Sir Dudley Pound (right) at an airport near London. The Admiral made the journey in a Lockheed plane and had as fellow-passengers Mr. Winant (seen on the left of the picture) and Mrs. Winant. When interviewed by newspaper reporters, Admiral Stark said: "I came here last time as an officer of the U.S. Navy and stayed to the end. This time I am back again and hope to stay to the end again"

Turkey.—A note of interrogation qualifies to-day the caption I have chosen. There are two schools of thought about the attitude of Turkey and her reaction to aggression from Germany, or even Italy and Bulgaria, in the coming spring campaigns. The Turks were our allies under the 1939 Treaty which bound them to come to the aid of Britain and France, if those Powers were involved in an act of aggression by a European Power, leading to war in the Mediterranean. But the Treaty contained a clause limiting such aid. If it would involve hostilities between Turkey and Russia, the Turks could "bargain out" of the Treaty. And they did so. At that time they were woefully ill-armed; and their subsequent pacts with Bulgaria and Germany produced in Britain a school of pessimists who still doubt Turkey's resolution against German aggression. There are proofs on the more optimistic side. The Turks to-day are much better armed. Guns and tanks and planes have come in in fair numbers from America and Britain. Their soldiers are as brave and resourceful in defence as ever they were. Their Government has never denied or weakened on Turkey's undertakings to Great Britain, and hitherto has resisted bribes, threats and promises from the Axis. The pact it signed with Germany may well be regarded as a justifiable expedient to gain time for rearming rather than as a weakening. She did not incidentally stoop to a similar expediency-pact with the weaker Axis partner, Italy. There is every reason for us to know that Turkey has always resisted aggression upon her territories, and with resolution; and that to-day she has a realistic enough view of the value of Germany's promises and signatures. Turkey probably has 600,000 men under arms, and these as well equipped now in modern weapons as the Bulgarians. On the whole, though the fog lies thick over Asia Minor, the optimistic view may be preferred to the pessimistic.

War-Damage Procedure.—Soon we shall be paying another premium under a new scheme of War Damage Insurance. Meanwhile, I record progress with existing claims and dealings with "the appropriate departments." *March* 19, 1941.—Four bombs fell on property, eliminating paths giving access to village and destroying private water-main and several full-grown fir-trees. *End of March.*—Water-main repaired by instruction of A.R.P. officer, and one path made available again. Claim and bill sent in to Hants District Valuer. *March* 30, 1941.—Claim acknowledged as received by D. V., *Southsea. April* 2, 1941.—"Damage (described as 'damage to chattels') will be inspected by our Panel Valuer, *Havant.*" Nine months pass and nothing happens. A reminder is sent to D. V., Southsea. *December* 5, 1941.—W. D. Regional, *Reading*, having "taken over" from Hants, "cannot trace receipt of original claim." *January* 19, 1942.—W. D. Regional, *Tunbridge Wells*, having "taken over" from Reading, admits receipt of original claim and promises under certain conditions to forward some more, or more appropriate, forms to be filled up. *March* 14, 1942.—*Tunbridge Wells* says that my case is now under consideration. (A full year has now passed.) *April* 21, 1942.—*Sussex* War Agricultural Officer, under instructions from *Tunbridge Wells*, arrives unannounced, having driven 34 miles. Having inspected and measured circumferences of craters, he ruefully complains that the job is not his pigeon at all. It is not *agricultural* land. (*I* never said it was, nor that the damage was of *chattels*. for that matter.) And so we go on, trustfully and very slowly. For the mills of Bureaucracy grind slowly still. I made reference to this business six months ago, and a reader reproved me for "wanting to make money out of the war." That was unjust. I sent in my original claim under official instruction and have never asked for any immediate payment for essential disbursements on repair of water supplies or access to village, nor do I seek or desire, now or after the war, any compensation for refilling those disgusting craters, which can remain for posterity a reminder of the imbecility of war. It is simply the creaking of bureaucratic machinery which keeps my curiosity alive and, I confess, keeps it *morbid*.

A Letter to a Friend.—An open letter to my friends! A letter to a friend! Shall I take the trouble? Or let it rip? Shall I retrieve a half-sheet of paper and cover it with the clear evidence of an existence intellectually barren, immutably confined, bovine, ovine, colourless and anxious? Shall I retrieve a thrice-used envelope and superimpose on it one more fatuous flimsy to carry your address? Merely to tell you (what you know) that my life is a dry cake as sparsely plummed as yours? Why trouble? And yet . . . Is it *sense* to fold our hands and not to make the attempt to save something from the wreck? With so much of the treasury of our past gone beyond recall—good, bad, indifferent; we cannot yet rightly assess which of them were not worth preserving—ought we not to make the effort to keep that last bridge standing? None ever yet kept a friendship alive, save by hard work. As the war tends to age us prematurely, it tries to drive our minds more and more into the past and to diminish our interest in the future and the present. And what are the sweets of memory but the experiences of friendship? Middle age and old age are not vices, but facts of nature. We may applaud the youthful mind in an old body; we have no right to condemn the mind which ages with its body. Time and war react on individuals in different ways. It is up to every one of us—octogenarian or stripling—to keep young, keen, elastic; to keep our interest and zest in the present and our faith and hope set on the future. That is an article of patriotism. But to keep intact the life-lines of friendship may be more than an insurance: it may be the soundest specific to that patriotic achievement. It is friendship and communion with friends which will keep us young, keep us hopeful, keep us keen. Here goes, then! One more essential war job. . . .

THE OLD STAGER

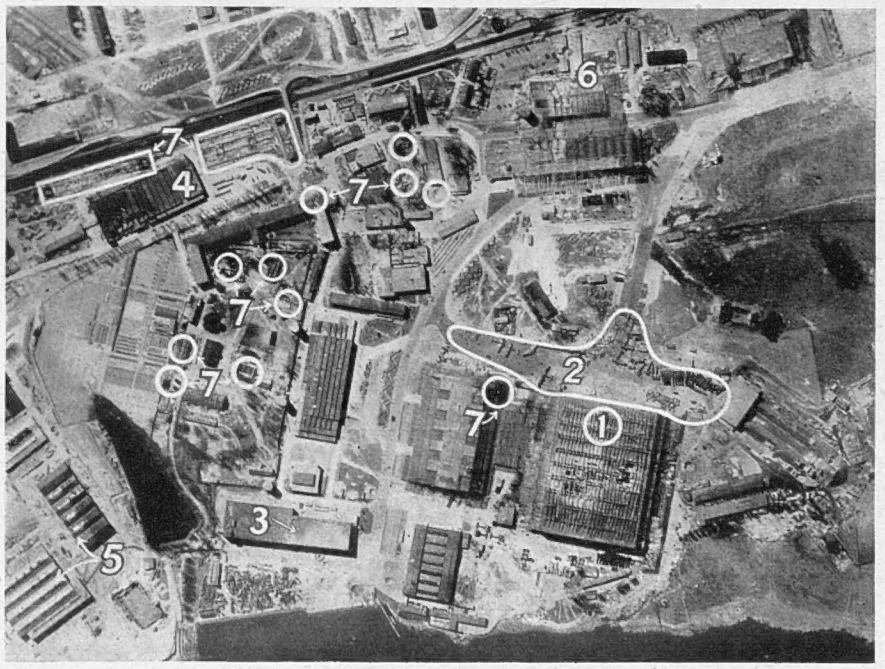
WHAT THE R.A.F. HAVE DONE TO THE HEINKEL WORKS AT ROSTOCK: AN OFFICIAL AIR MINISTRY PHOTOGRAPH taken by a reconnaissance aircraft, which clearly shows the damage inflicted by our bombers during the recent devastating raids on this great Baltic centre of German wartime activity
(A key is provided in the smaller picture given below)

SEVERE damage to the biggest assembly shop of the Heinkel aircraft works is revealed by the latest picture taken of Rostock after its four nights of sustained attack by the R.A.F. The Heinkel is the backbone of the *Luftwaffe's* bombing squadrons. Heinkel bombers carried out many of the attacks on London, and were engaged in the recent raids on Bath and Norwich and York. They sally far into the Atlantic to attack our convoys. In the Rostock raids, therefore, the German Air Force sustained a blow which in its weight and effect is equivalent to a major aerial defeat.

The main Heinkel factory consisted of several large assembly sheds, boiler houses, an electric transformer station, drawing and other offices. The completed aircraft are tested and flown away from an aerodrome adjoining the factory. The latter had been much enlarged in recent months. It produced various types of Heinkel aircraft, but chiefly bombers—including a new four-engined type, the Heinkel 177. The type made in the largest numbers is the Heinkel 111 bomber, and the weekly output of these was estimated to be twenty-four. Seven or eight Heinkel 113 fighters were produced each week, and between two and four Heinkel 115 torpedo- or bomb-carrying sea-planes. Since the R.A.F. bombed the factory, the Germans have taken more than seventy uncompleted and undoubtedly damaged fuselages from the bombed assembly sheds, and they are lined up outside. At least three very heavy bombs fell in a tight stick through the roof of the largest assembly shed in the works, a building 330 ft. by 170 ft. There is a hole 72 ft. across in the roof and two others are more than 50 ft. across. The damage inside the shop from the explosion of these heavy bombs can be imagined. Cranes, conveyors and other heavy machinery could hardly escape being wrecked.

Another large workshop has been severely damaged, and the experimental assembly shop—very important in a factory of this kind—has been hit. The machine shop, the paint shop, the technical school, the railway line supplying the works, and two buildings in the shipyard have also been damaged. So has the drawing office—and a bomb on this alone would have severely disturbed production.

In the town of Rostock itself there are two areas of devastation. One of them is 900 yards long by 650 yards: and the other 750 yards by 650 yards. All the station buildings at the Friederich Franz railway station have been gutted.



FOR COMPARISON WITH THE LARGER PICTURE AT THE TOP OF THIS PAGE

1. **The main assembly shop, hit by a stick of bombs. Note roof damage. The biggest hole in the roof of this building measures approximately—at its greatest length—240 ft., and at its greatest width 180 ft. It is a jagged hole; and these figures do not mean that the *area* is 240 by 180 ft.**
2. **Fuselages, aircraft parts, and aircraft salvaged from the shop and brought out into the open**
3. **Assembly shop, showing damage from blast**
4. **Machine shop damaged by fire**
5. **Large workshops: damage from blast**
6. **Paint shop: damage from blast**
7. **Other buildings, in various parts of the area, damaged by fire and high explosives**

The Tale of Three Cities:

The "Baedeker" "Reprisal" Raids on the Towns of Bath, Norwich and York

FIREMEN AT WORK IN THE RUINS AT BATH: Casualties were fairly heavy here, and many of the citizens were rendered homeless by the indiscriminate bombing of the "spite" raiders

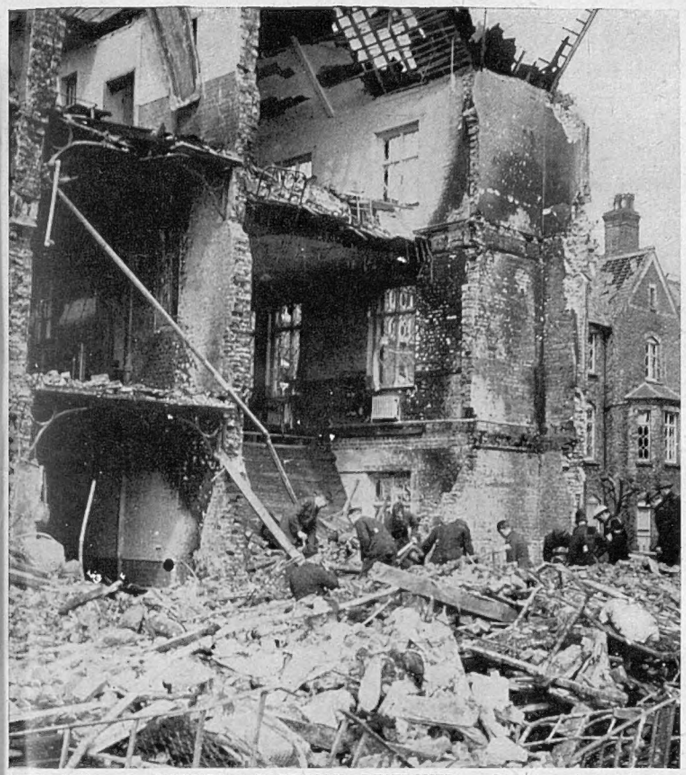
As a "retaliation" for the very heavy raids on Lübeck and Rostock by the R.A.F., the enemy have now openly declared their intention of bombing towns in Britain of great historical importance—taking as their guide *Baedeker*, which lists buildings of architectural value—despite that they stated in February that "the bombing of British towns is simply not worth while." Their latest decision has put the *Luftwaffe* in a grave dilemma. It was already greatly stretched and could not now undertake any large operations against this country without drawing upon forces already actively engaged on some other front. Consequently, for the attack on Exeter—first of the "reprisal" series—about five bombers were employed by the Germans; this figure was increased to twenty the following night. Bath was first attacked by fifty, and then only by thirty bombers. Norwich was visited by twenty-five; and York by twenty. Thus for six attacks 150 bombers were used, and an estimated total of 225 tons of bombs were dropped. During the same six nights, the R.A.F. dropped *on Germany alone* over 1,300 tons!

THE KING AND QUEEN VISIT BATH AFTER THE RAIDS: During their drive through wrecked streets, the royal route had to be changed, as half an hour earlier a further fall of masonry had occurred

A SCENE OF DESOLATION IN THE CITY OF BEAUTIFUL CRESCENTS AND NARROW STREETS: Bath suffered two raids within twenty-four hours, and many of its graceful Georgian houses were wrecked, but working-class districts suffered the most

BOMBED-OUT RESIDENTS WAITING TO GO TO REST CENTRES AT BATH: Hundreds of pathetic little groups like this assembled in the city after the two raids

WALKING THROUGH THE WRECKED STREETS: On the right is Alderman Aubrey Bateman Mayor of Bath. Before they left, the King and Queen gave several parcels of woollies and tea for homeless people of the city



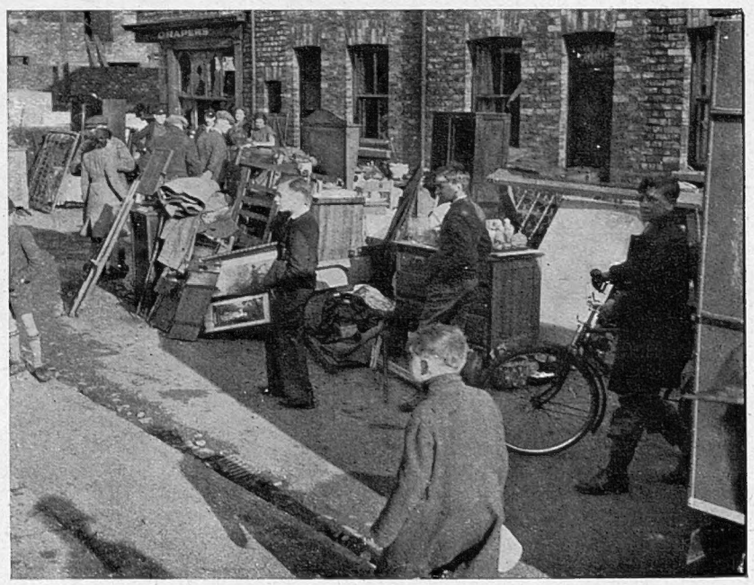
NORWICH: A HOSPITAL PARTIALLY DESTROYED: It is estimated that twenty-five bombers were employed in this raid: the Germans admit the loss of three, although we claimed none!

ONE OF THE WORKING-CLASS QUARTERS WRECKED BY THE "SPITE" RAIDERS AT NORWICH during the second attack on that East Anglian city

Although their avowed intention has been to wreck buildings of historic importance, in all the three towns represented here the Nazi bombers have wreaked most of their destruction amongst working-class quarters. To the definite knowledge of the Air Ministry, seventeen bombers have been shot down, although it is probable that this figure is much higher. Thus the enemy have lost one bomber for every 15 tons of bombs dropped—losses which no air force in the world can sustain for any length of time

A SCENE REMINISCENT OF THE EARLIER RAIDS ON LONDON: Clouds of smoke billowing across the roofs of the City of York, when the third historic spot was wantonly bombed by the Germans in their series of "Baedeker" reprisal raids

THESE ARE NOT "'BAEDEKER' THREE-STAR" BUILDINGS OF HISTORICAL IMPORTANCE but working-class residences of York which suffered badly



HOUSEHOLD GOODS MOVED OUT INTO THE STREETS from working-class houses damaged at York, after the dwellings had been rendered uninhabitable

THE GREAT CONUNDRUM OF THE WEST

What are the Chances in the Event of Allied Action in One of the Occupied Countries? Here, Two of Them—Denmark and Belgium—are Considered in Detail, and the Possibility of an Attack in Force Through One or the Other is Discussed

By FERDINAND TUOHY

BY the time this appears, the balloon may have gone up. In the East? In the West? In both? Or, again, the curtain may still be down on the impending spectacle of which the world should be so proud: "The Greatest Battle on Earth." In the latter case, the two secrets, "Where will *he* strike?" and "Where will *we* strike?", will continue to absorb the minds of thinking people while "Intelligence" on both sides possesses the real information upon which alone deductions may sensibly be drawn.

In my vintner's, where Fleet Street "think merchants" are wont to tarry, the talk has been of France and Norway as the most likely scenes of Allied strokes. In particular, the internal situations in each of these occupied countries (since France under Laval may be deemed all occupied) have had copious attention in the public prints. On the principle of the more Hitler is kept guessing, the better, the reverse of harm is done by extending similar attention to all five of the occupied countries which form Hitler's 2,000 miles of coastline to defend from North Cape to Bayonne. What are things like in Holland? In Belgium? In Denmark? Supposing Allied action were to include one of these?

Well, let 's stop supposing and jot down a few things about Denmark and Belgium, each of which has been somewhat neglected considering the vista which would be opened could the Allies maintain themselves in either.

Denmark. The first person I think of is Lord Fisher, who had a Biblical tussle with Mr. Churchill concerning the respective merits of attacking the Dardanelles or going into the Baltic and forming an Anglo-Russian front plumb along Germany's vulnerable northern coast. Denmark was neutral then and it would have meant passing through the Kattegat within a mile of Copenhagen. But Fisher was not the kind to worry over international law niceties when his opponent respected nothing. Fisher's worry was a great German Fleet.

It is almost superfluous, and too tantalising, to mention the advantages that would accrue from a successful invasion of Denmark. They are at least sixfold—no doubt more. The Allies would join up with the Red Fleet and open a much shorter, though freely menaced, supply route to Leningrad. They would close the Skaggerak, vital to Germany for her sea war. They would cripple the ferry systems from North Germany to Sweden. They would cut off Norway from Germany. They would open a second front with a vengeance, right on Northern and Central Germany's doorstep. And the R.A.F. could be over Hamburg, Berlin, Bremen *unsoweiter* within an hour or two.

But the high-duned Danish coast lies 300 miles from our north-eastern ports, far beyond the range of that "fighter umbrella" understood to be essential to successful invasion at this stage of the war. And supply ships sufficient to maintain a force capable of withstanding massive counter-attack would have to run the North Sea gauntlet.

The Danes, however, are keeping true. They want their little country to themselves, now as in the past, and no Nordic overlordship from Berlin. The Nazis have adopted the velvety manner with them, but, like Garbo, they prefer to be alone. Internationally, their first preference has long been England, and I used to think them of all Continentals the most comprehending of this strange land.

King Christian has refused to go to Berlin, and Danish Ministers abroad have resigned rather than serve under the Stauning Government, whose real boss is one Eigil Thune Jacobsen, late policeman. I have had occasion to relate how the Nazis went primarily out after police officials in all the countries they coveted, and the day they crept upon a sleeping Copenhagen the capital awoke to find the "fixed" but unknown Jacobsen as its Chief of Police. He became Minister of Justice after a visit by Himmler. Thanks to Jacobsen, the Danish trade unions have been taken over by pro-Nazi leaders, anti-German editors have been eliminated, and judges and magistrates have been warned to apply all severity to "elements disturbing good relations between Danes and Germans."

To-day an overwhelmingly friendly Denmark awaits deliverance, and Danes would welcome "the Tommies" as gladly as in 1920, when "Tommies" and "Poilus" saw that South Jutland, seized by Germany in 1864, went back to Denmark. Pro-Nazi elements are said to be not a fiftieth part of the whole. But there is just one thing open to correction. Like the Swiss, whose continued individuality also depends on an Allied victory, the Danes have worked too readily for Hitler. Work for him, supply him, they must, but need there be so marked an absence of go-slow, tricks and sabotage—aye, of that spirit of resistance which has given lustre to near neighbours in Norway and Holland? Might not Danes start turning the heat on their quislings, as is being done elsewhere with good results? Meanwhile, if the Danish shipbuilding yards working all out for Hitler are one day "blitzed," Danes will understand that liberation begins at home.

Danes may listen to the B.B.C., but I 'm not posted as to what London has been saying to them beyond that some time ago "Colonel Britton" named as a traitor Otto Piper, wealthy wholesaler of Hellerup.

Next: Belgium. The Nazis have an idea that the Americans favour bursting towards German soil where this is closest, which would mean through Belgium to Aachen. This may in part explain the hasty mining and fortifying of the historic Sambre and Meuse "triangle" 100 miles inland and whose chief centres are Charleroi and Namur. The suggestion is that Rundstedt wishes a great central redoubt on which to fall back should he be uprooted on the coast which, for its part, has been prohibited to almost all civilians from La Panne to Le Zoute, and the same goes for several miles inland, where defence lines are being organised.

One sympathises with ex-Minister Wauters when he comments, in London, that "the choice of the Sambre and Meuse country is not due to any improvisation, hazard or fantasy. It is one of the regions in the whole world where the most decisive battles in history have been fought. Belgium has the sad privilege of being mutilated anew each time her powerful neighbours decide to settle their accounts on her soil." On the other hand, Belgium might learn to tie up with countries which manifestly wish nothing better than to leave her in peace and prosperity. The notion of trusting Germans and Anglo-French alike in the matter of potential aggression against Belgium was crazy from the start.

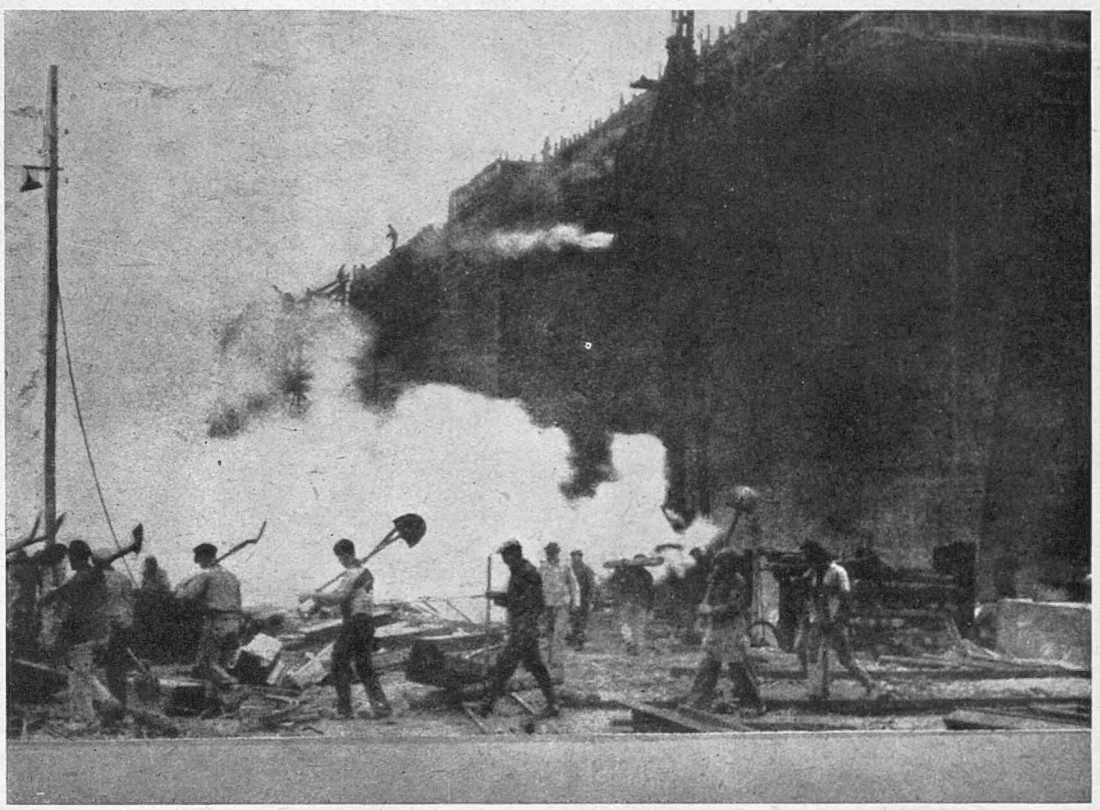
M. Wauters' latest reports from Belgium show that the population is preparing for an invasion and, hating the Germans as much as ever, is developing its resistance. Belgians are being executed at the rate of nearly one a day, which mounts up, and then there are the hundreds of hostages held and the thousands of deportations made. But the underground campaign flares only the fiercer. Belgian "V" devotees are in the van for getting the hang of things, and now they follow a programme and technique in firing factories and stores destined for Germany, in train-wrecking and cutting communications, in blowing up industrial installations and even local quislings. The prisons are overcrowded. The country is heavy with misery and hunger-weak, but the spirit of the Lion of Flanders lives on.

To-day Flemings and Walloons who used to spend their time quarrelling about which language they 'd use, are learning in a bitter school indeed that there are other things a trifle more important. They watch Germans lording it while Belgians beg for food in a land once notorious for its fat and plenty; daily execution shots in the Tir National—where Nurse Cavell died—echo in their brains; they look around upon a country skinned by the locusts. And this: "The atmosphere of Brussels is that of a large German provincial town. German soldiers, German civilian factory workers, and German girls, in grey uniforms, from the Government offices, ministries and telephone exchanges, fill the streets. The big stores, Bon Marché, etc., are open, but have only a sprinkling of German goods. Shoes cost 800 francs a pair, suits are being made from tree bark. Butchers are closed five days a week; potatoes 1s. 8d. a lb.; no fish; all tinned stuff long since sent to Germany. No buses, only cycles without tyres. The cinemas and hotels all German, and loud-speakers blaring in German right and left."

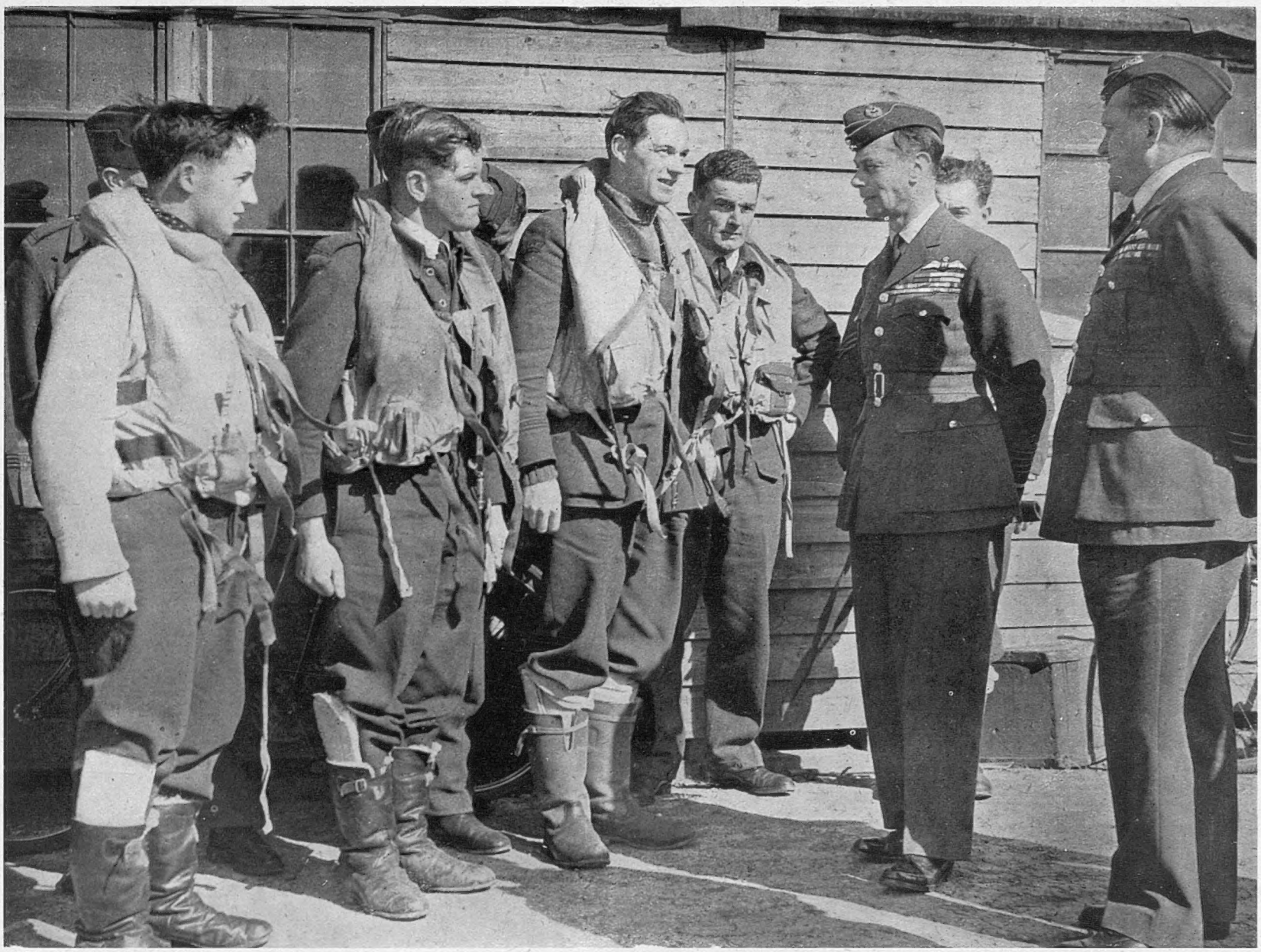
Poor Brussels! Does Burgomaster Max hover in spirit over his own Boulevard Adolph Max as the *sales Boches* throng it as of yore when he defied them? Memories of those days are reconjured when one hears that "the secret papers, *La Libre Belgique* and *La Voix des Belges*, have a wide distribution. Von Falkenhausen receives a copy on his desk each week." So used old Von Bissing. But one misses the magnificent Pastorals of a Cardinal Mercier!

However, the Germans get other reminders: "Slogans like 'Vive Churchill!', 'A bas Hitler!' and 'Les Sales Boches' are continually being scrawled on the walls and imprinted on the roads." Probably by students, whose plucky audacities are earning them a rough time—one of the least of their punishments is that of being carried on trains as hostages. That a military organisation called "The White Brigade" is the latest addition to a series of secret units whose members are arming themselves to help the Allies is very welcome news. Belgians get the Home Service fairly well, and it was good policy to mention this "White Brigade" because the more the merrier . . . even organised bodies without weapons but standing ready to receive them from the Allies.

The Germans recently made a song and dance about the 250,000th Belgian leaving to go to work in the Reich. This figure, certainly vamped up, includes prisoners of war. Most of the civilians who have responded have done so from family want. It is not the workers who reconcile themselves to Nazi permanence: they are apt to be so restive in Belgium itself that their German and Rexist masters have to try cajoling them into staying on in the requisitioned factories by offering extra rations and bonuses. The chief pro-Nazi influence is in the administrative and civil services, and it is not to be scoffed at. Nine-tenths of the country may be for Belgian independence, but the remaining tenth can be an awful lot of service to the Germans these times if so much of it be entrenched in Government employment. The chief German agent is an ex-Flemish-Nationalist M.P. named Romsee, who is Secretary-General of the Home Office, and he is run closely by Colonel van Coppenolle, whose specialty is undermining the police. The Colonel has been indicted by the B.B.C. as the only senior Belgian officer known to have betrayed his country.



CIVILIANS FROM THE ENSLAVED COUNTRIES COME TO THE HELP OF THE GERMAN WAR MACHINE: Owing to the increased activities of the R.A.F., the Germans have been forced to undertake the gigantic task of building air-raid shelters for their U-boats. This new task has added a very serious burden to German industrial resources; and an even further supply of civilian labour from the enslaved countries has been called for



AFTER THE RETURN FROM A "SWEEP": The King talks to some of the fighter pilots at the dispersal hut just after they had landed. On the extreme right is Air Marshal Sir Sholto Douglas, the Commander-in-Chief of Fighter Command, who accompanied the King

FIGHTER OFFENSIVE

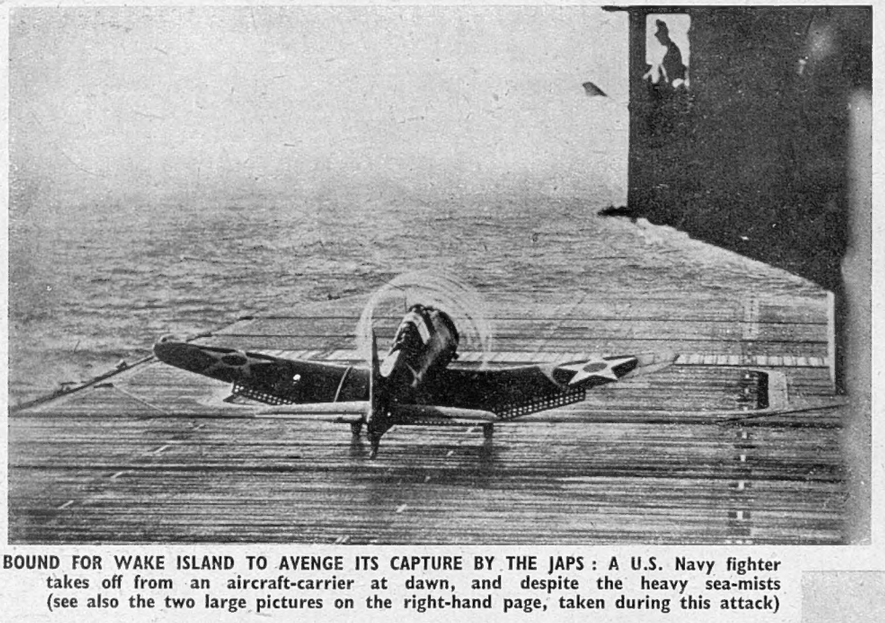
The King pays a Visit to the Men who are Carrying Out the Daylight Sweeps over Northern France

A TOUSLE-HAIRED R.A.F. FIGHTER PILOT RELATES HIS EXPERIENCES to the King on his return from the day's daylight "sweep"

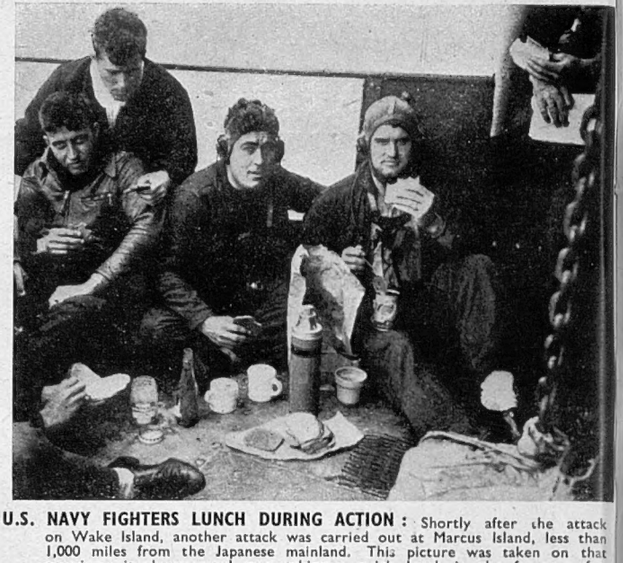
A few days ago the King paid a visit of inspection to R.A.F. stations from which Spitfire squadrons operate for daylight sweeps over France. Sir Sholto Douglas, Fighter Command C.-in-C., accompanied him. At one station the pilots found his Majesty waiting to greet them as they landed, the King walking over to the dispersal hut to question them about their experiences. Whilst waiting for them, the King had listened to radio telephone conversations between the pilots out over the Channel and their home base; and he also heard some of the pilots' remarks when they sighted the enemy. At another station he shook hands with each pilot, and then stayed to see the two squadrons roar off, to scour the skies over Northern France

BEFORE THE TAKE-OFF: The King shakes hands with each pilot of two squadrons before they climbed into their cockpits. Then he watched them take off for a daylight sweep over the occupied territory of Northern France

The U.S. ATTACKS in the PACIFIC

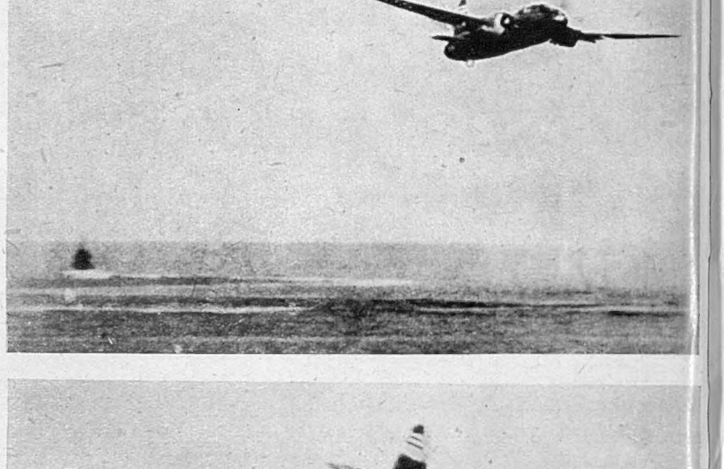


BOUND FOR WAKE ISLAND TO AVENGE ITS CAPTURE BY THE JAPS : A U.S. Navy fighter takes off from an aircraft-carrier at dawn, and despite the heavy sea-mists (see also the two large pictures on the right-hand page, taken during this attack)



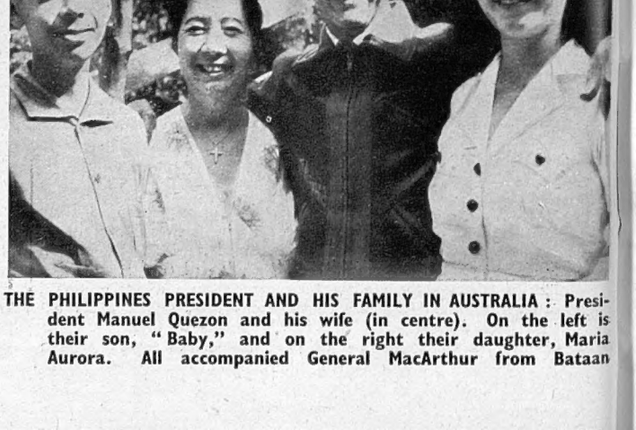
U.S. NAVY FIGHTERS LUNCH DURING ACTION : Shortly after the attack on Wake Island, another attack was carried out at Marcus Island, less than 1,000 miles from the Japanese mainland. This picture was taken on that occasion ; it shows naval men taking a quick lunch in the foretop of a U.S. aircraft-carrier. A radio station, hangars and other installations on Marcus Island were destroyed during the attack

THE NEW STEEL HELMETS OF THE U.S. NAVY AND ARMY : A picture taken on what was once the tennis deck of a crack passenger liner. It was one of a great convoy which recently reached Australia with U.S. troops and supplies



A SHOT-DOWN JAPANESE PLANE which attempted to "ram" a U.S. aircraft-carrier in the Pacific : The aircraft in these two pictures made an astonishing attempt which illustrates the fanatical fury of some Jap pilots. When the aircraft made its deliberate dive on to the warship the carrier swerved, and, with one engine gone, the plane plunged into the sea. The upper picture was taken after the port engine was shot away ; and the lower picture shows the plane about to make its last dive

THE COMMANDER-IN-CHIEF MEETS THE PRIME MINISTER AND THE AUSTRALIAN CABINET : General Douglas MacArthur, the American defender of the Philippines, who is now in supreme command in Australia, is here seen during his first visit to Canberra to confer with the Australian War Council. From left to right are Major-General P. K. Sutherland (General MacArthur's Chief of Staff), General MacArthur, Mr. John Curtin (Prime Minister), Mr. Fadden (Leader of the Opposition), and Mr. J. B. Chifley (Federal Treasurer), as they conferred on the present war situation in the Southern Hemisphere



THE PHILIPPINES PRESIDENT AND HIS FAMILY IN AUSTRALIA : President Manuel Quezon and his wife (in centre). On the left is their son, "Baby," and on the right their daughter, Maria Aurora. All accompanied General MacArthur from Bataan

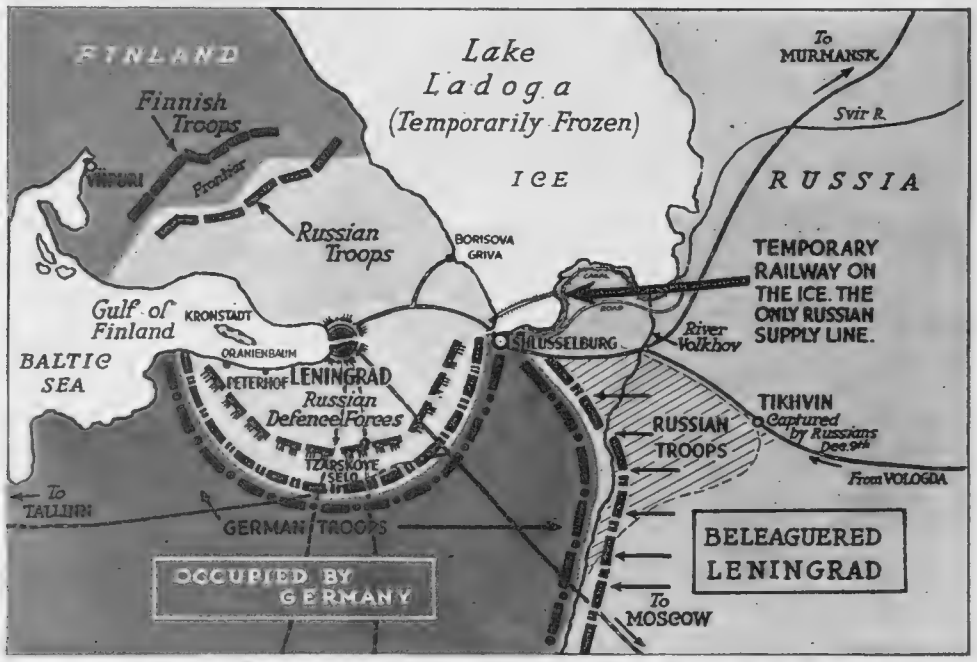
SWINGING OUT OVER TINY WAKE ISLAND IN THE PACIFIC, one of a squadron of U.S. fighter aircraft, accompanying the bombers, gets a good view of the installations of the Jap occupants before the big raid carried out by the U.S. Navy on February 24

The big raid by the U.S. Navy on Wake Island was carried out on February 24. On March 4 another raid was carried out on Marcus Island. But pictures of these two related engagements were not released by the U.S. Navy Department in Washington until a month later—April 4. Some of them have now reached Britain, and are reproduced on these pages. The U.S. Navy Department has stated that both raids were carried out by units of the Pacific Fleet under the command of Vice-Admiral William F. Halsey. At Wake, on February 24, U.S. aircraft dropped 219 bombs, and cruisers and destroyers carried out heavy shelling, two Japanese gunboats were sunk and many prisoners were taken, three seaplanes were destroyed at their moorings, and fuel and munition dumps, hangars, runways and storehouses were destroyed. At Marcus Island—760 miles north-west of Wake and 990 miles south-east of Yokohama—a completed air base was virtually wrecked and the radio station, storehouses, hangars and petrol and munition dumps destroyed. There was little enemy opposition at either island and few Japanese planes or ships were sighted by U.S. pilots. The only American losses were one plane at each island

IN A RECONNAISSANCE FLIGHT BEFORE THE WAKE ISLAND RAID, THE NAVY TOOK THIS GOOD PICTURE OF ITS JAPANESE-HELD TARGET. Later the big guns of the U.S. Fleet carried out a heavy bombardment of these repaired runways and other enemy installations

SPRING COMES to RUSSIA—Special "Sphere" Drawings and Diagrams

THE COMING OF SPRING AND WHAT IT MEANS TO THE GERMANS: Ice and snow turn into slush and deny any mobility to an advancing army. For a period, the weather conditions are worse than during the depth of winter—*Drawing by W. G. Whitaker*



THE STRUGGLE FOR LENINGRAD: How the Germans have clung on to Schlüsselburg and the Volkhov River line against repeated Russian attacks. The line across the ice has been the only supply route to the city.—*A special* Sphere *diagram*

For nearly ten months Leningrad has endured a siege, accompanied by almost perpetual fighting. It was on July 16 last year that it was announced that the Germans were advancing; but Leningrad itself was determined to resist to the uttermost. Vast sums had been expended on its defence; the fortifications were 50 miles deep; twenty-five divisions of well-equipped troops were prepared for the defence; and all unnecessary civilians had been evacuated.

So irresistible was the German advance, however, that on July 29 even the Soviet newspapers were prepared for its fall, which was rashly announced by a Stockholm newspaper! Throughout August continuous attacks were made; and by the beginning of September all roads and railways to Moscow were captured, only the Vologda railway remaining to supply the city. By September heavy rains were falling, and the first snow, foretaste of the dreaded winter, appeared as early as the 12th.

With October, the weather became ever more wintry: the German attack slackened, and trenches were dug and fortified. By that time the German lines ran in a semi-circle from a few miles west of Peterhof round to Schlüsselburg, on Lake Ladoga, and from there south along the Volkhov River. Von Leeb made one last effort, and by a surprise attack at night captured Tikhvin, on the Vologda railway, which he hoped would cut off all Russian supplies.

But, when the surprise Red attack took place in the south in December, Voroshilov at Leningrad also attacked and drove the Germans out of Tikhvin—a real victory, with 7,000 Germans dead on the battlefield. General Meretskov again attacked, but although he regained many villages, Schlüsselburg withstood all assaults: with the control of the railways the Germans could bring up reinforcements and thus saved the situation.

Although still encircled, life in the city has been eased considerably. Brought by rail to Tikhvin, then by sledges to the shore and across the ice on a two-way track to Borisova Griva, supplies were transferred to the railway right into Leningrad.

At the end of April a deadlock prevailed, neither side capable of much movement owing to the weather. Nor was there prospect of change till about the middle of May, when the fearful mud would have hardened, and the miseries of the rapid thaw, which has exhausted the troops, would have passed away.

At the beginning of March there were signs of the breaking of the clutches of winter, much to the relief of the German High Command, who showed extreme exasperation at the return of severe wintry conditions two weeks later. Snowstorms swept over the whole of the Russian front from March 17. The cold was intense, and snowdrifts blocked movements even down to the Crimea.

Ten days later the thaw had begun in certain districts, changing the hard, frosty surface of the snow-covered land, bringing even more discomfort when the trenches became flooded. The night frosts were sufficiently keen to harden the roads and allow night traffic.

The Germans have been busy making what are known as "corrugated roads," constructed of pine logs placed close together on the soft surface to give a grip when the slush comes. It was to be noticed that the Russians, who are prepared for their own weather, changed their footwear at the end of March, discarding the thick felt boots for leather ones.

By the beginning of April the thaw in the south was proceeding rapidly, holding up motor transport, and in the central area boggy land was beginning to reappear. As the snow melts, dead bodies hitherto covered under the white mantle are being disclosed in thousands, and the Germans are in fear of an epidemic. Up in the extreme north, in the Murmansk area, the winter will not break up before the middle of May.

The German troops there have not succeeded in advancing at all from their positions on the River Litsa, which they reached last July. The plague of mosquitoes during the short summer, the horror of the *tundra* ("God's gift to the enemy," as the Nazis call it), and the long weary months of grim winter, with almost perpetual darkness, have tried the German soldiers to the uttermost.

Round Leningrad the snow is rapidly melting, and the ice on some of the rivers and lakes is getting unsafe, though the railway laid across the ice of Lake Ladoga was operating. This double-track line was supplying Leningrad, and will be a great loss when the thaw renders it impossible.

In the Ukraine the soil dries more quickly than in the north, but at present the mud is a terror to any army desirous of taking the offensive. This is not expected to be at all feasible till May.

THE GREAT VOLGA HIGHWAY, which opens up regularly on April 26. This year it will facilitate the passage of supplies from Britain and the United States via Persia and the Caspian Sea

TWO TYPES OF GERMAN HOWITZERS CAPTURED BY THE RUSSIANS RECENTLY ON THE EASTERN FRONT: That on the right is one of the best pieces of ordnance possessed by the enemy to-day; the one on the left, a form of howitzer, is obviously not intended for quick transit!—*Drawing (from photographic material) by E. G. Lambert*

WE were told during the German rearmament programme that the 77-mm. field-gun of the Great War had been largely replaced by a new 105-mm. gun-howitzer (about 4-in. calibre) of modern construction. On the right in the above drawing is this weapon, perhaps the best that the Germans have to show to-day in artillery. This specimen (together with the howitzer on the left) was captured by the Russians, together with scores of others, during the fighting on the Eastern Front, where at many places the enemy was forced to make a hasty retreat.

The chief features of the 105-mm. gun are its mobility and ubiquity. Mobility is provided by the large low carriage, like the chassis of a heavy lorry, with double wheels on large pneumatic tyres (the added refinement of mudguards indicates the speed at which the weapon is intended to travel!). The ubiquity is the product of the slender, long barrel, the recuperator and recoil cylinders, and the armoured shield. Thanks to these features, the weapon can be used, like our own 25-pounder "gun-how," either for a straight shot at an upright target, or for dropping a shell from a height into a trench or a fortress. By the length of the barrel the gun must have a considerable range. The recuperators, working on the hydraulic principle, enable the huge weapon to fire without pushing the carriage backwards by recoil. The armoured shield is designed to enable the crew to operate, if necessary, over open sights at point-blank range against near targets such as tanks.

Russia has always been artillery-minded: many of her more notable military successes have been scored through the employment of this arm, and the present war is proving no exception. Owing to the supremacy of the petrol engine, however, artillery to-day must be as mobile as are the lorries and tanks. But gunnery science has not yet found a means of making really heavy, long-distance guns and howitzers capable of being rushed along, and back again, under all kinds of conditions. For this reason, during their initial advances into Russia, the Germans captured many Soviet pieces of ordnance; but, likewise, during their recent successes, the Russians have captured a vast quantity of guns from the Germans, such as those represented in the above drawing.

BRITISH GENERALS MEET IN LONDON TO SPEED UP ORDNANCE SUPPLIES TO RUSSIA—A conference attended by high-ranking officers from all parts of the country and presided over by Major-General L. H. Williams (who is Director of Warlike Stores) to settle problems of supply for the Soviet

It has been admitted that Great Britain has implemented all her promises to Russia with regard to war supplies. This picture shows one of the methods by which this achievement was accomplished. Under the presidency of Major-General Williams, officers of the R.A.O.C. from all over the country have settled down for a three-hours conference. Three Generals head the table, and twenty-two senior officers sit round. A single civilian, the Civil Adviser to the Director-General of Army Equipment, was also present at this meeting of the experts

THE PORT OF ENTRY FOR BRITISH AND U.S. SUPPLIES TO RUSSIA: The route to the Far North harbour of Murmansk, where the wintry weather conditions usually break up in mid-May

On left—All through the winter the convoys have been passing to Murmansk, port of entry for Russia. The strain on the Navy in those dark and icy waters has been great; but now the winter is passing. Shortly, not only will the Arctic be ice-free, but the long winter nights will have gone. And the stream of supplies will have become a flood!

THE WAR BY AIR—Special "Sphere" Drawings

SIX OF THE WORLD'S LARGEST BOMBERS—ALL IN THE SERVICE OF BRITAIN, to help make good the Air Minister's promise to keep up a constant offensive over Germany. These Stirlings have just been serviced and bombed-up, and are ready for the take-off for a raid

In recent operations over Germany, Bomber Command have made use of Halifaxes, Manchesters, Stirlings, the very newest Lancasters (still on the secret list) and many other types of heavy and medium bombers. Of them all, the Stirling is the biggest—the world's biggest, not even excluding the American Flying Fortresses. The above impressive Air Ministry photograph gives a good idea of what these giants look like: the six are all ready for the take-off, having been bombed-up from the trucks on the left. Each of these aircraft has four 1,600-h.p. Hercules engines, which give a speed of 280 m.p.h. at the operational height of 14,000 ft., or a range of 2,050 miles at the more economical cruising speed of 200 m.p.h. The unloaded weight of a Stirling is over 20 tons: it can carry a weight of 10 tons! Like all British warplanes, the Stirling is very heavily armed—it has two guns in the nose turret, two more in its upper turret amidships, and a further four in the tail. To man these guns and to pilot and navigate the aircraft, a crew of seven is carried

HOW THE JAPANESE HAVE BEEN USING FLARES DROPPED FROM AIRCRAFT IN THEIR NAVAL ACTIONS IN THE PACIFIC. By this means the gunners have been able to range their guns quickly and well—*Drawing by L. Ashwell Wood*

The method illustrated here, of using flares to illuminate the opposing vessels, was followed with success by the Japs in the Java, and other, naval actions in the Pacific. The flares are of calcium, and they are dropped by either aircraft or destroyers: when dropped between two lines of ships, the nearer ones are thrown in strong silhouette and the farther ones are brilliantly lit up. This enables the gun spotters to get the correct range very quickly during a night action. American naval officers who reached Australia described how these carbide lamps would burst into a white flame on hitting the water and remain there for some considerable time. They are, of course, quite different from the ordinary flare dropped during raids

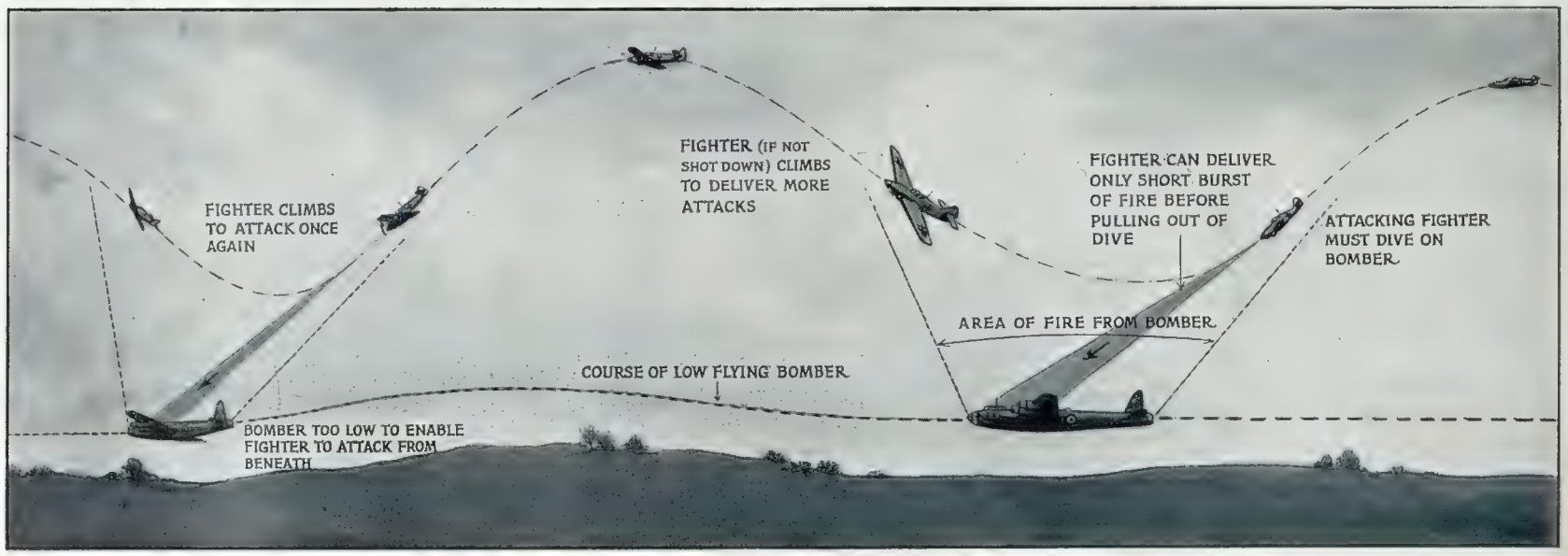
A PUZZLE FOR BRITISH BOMBER PILOTS OVER GERMANY: THE DECOY FIRES WHICH ARE LIT TO LURE OUR AIRCRAFT TO HARMLESS SPOTS and to divert them from their real targets. The planes in this picture are Halifax bombers—*Drawing by Roland Davies*

This little trick is well known to all bomber pilots. In order to lure our pilots from their true objectives, when an air-raid warning is given over part of Germany convincing-looking fires are started on the ground—obviously in a lonely part of the country—in the hope that the bombers will drop their loads harmlessly in the designated spot. Owing to the specialised and complete training given to R.A.F. navigators, however, it is not often that British bombs are wasted in this fashion. During our present offensive over Germany, however, so great have been many of the fires caused by our raids, and from such a distance have they been observed, that navigators have had to do some quick figuring to distinguish the false from the real !

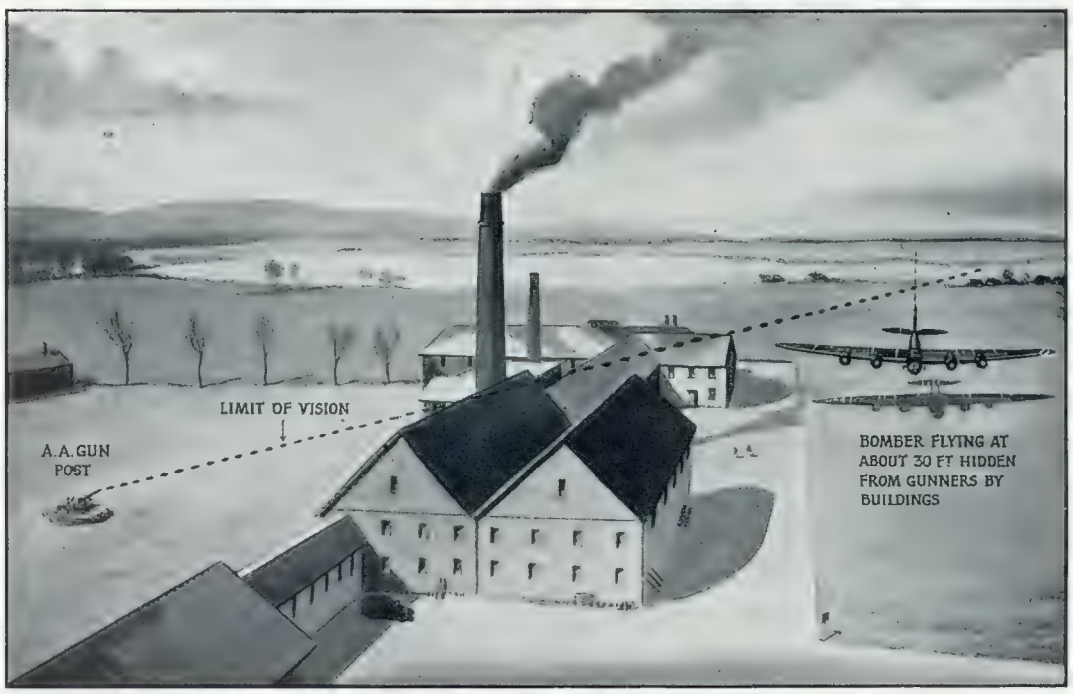
A WEIRD EXPERIENCE BY THE CREW OF A SUNDERLAND IN THE BAY OF BISCAY: A display of St. Elmo's Fire lights up the big flying-boat in astonishing fashion during an electrical storm—*Drawing by L. Ashwell Wood*

This Coastal Command aircraft, manned by Australians, was flying over the Bay of Biscay when it suddenly ran into an electrical storm. In a few minutes "fire" and sparks ran along the wireless aerial and streamers of white sparks came from all projecting parts: the barrels of the four guns looked as if they were covered with a purple luminous moss, and purple light illuminated the turret. "The Sunderland looked as though it was covered with glow-worms," said one member of the crew. It was St. Elmo's Fire, a luminous discharge often observed at night during stormy weather. The name was originally given by sailors to the pale bluish flame seen playing about the extremities of masts and yardarms during thundery weather. The name is a corruption of St. Ermo, or St. Erasmus, patron saint of sailors in the Mediterranean. In olden days, seamen gave themselves up for lost when they encountered the Fire on their mastheads. But the Sunderland flew steadily on, "looking like a huge purple and white firework," with a singed tailplane and a madly jigging magnetic compass as the only ill-effects

THE WAR BY AIR *(continued)* The Offensive by Bomber and by Fighter



WHY THE AUGSBURG RAID IN DAYLIGHT WAS CARRIED OUT AT ROOF-TOP HEIGHT : By flying low, it was impossible for the enemy fighters to attack from beneath, and the onslaughts from above could only be made for very short periods at a time—*Drawing by Roland Davies*



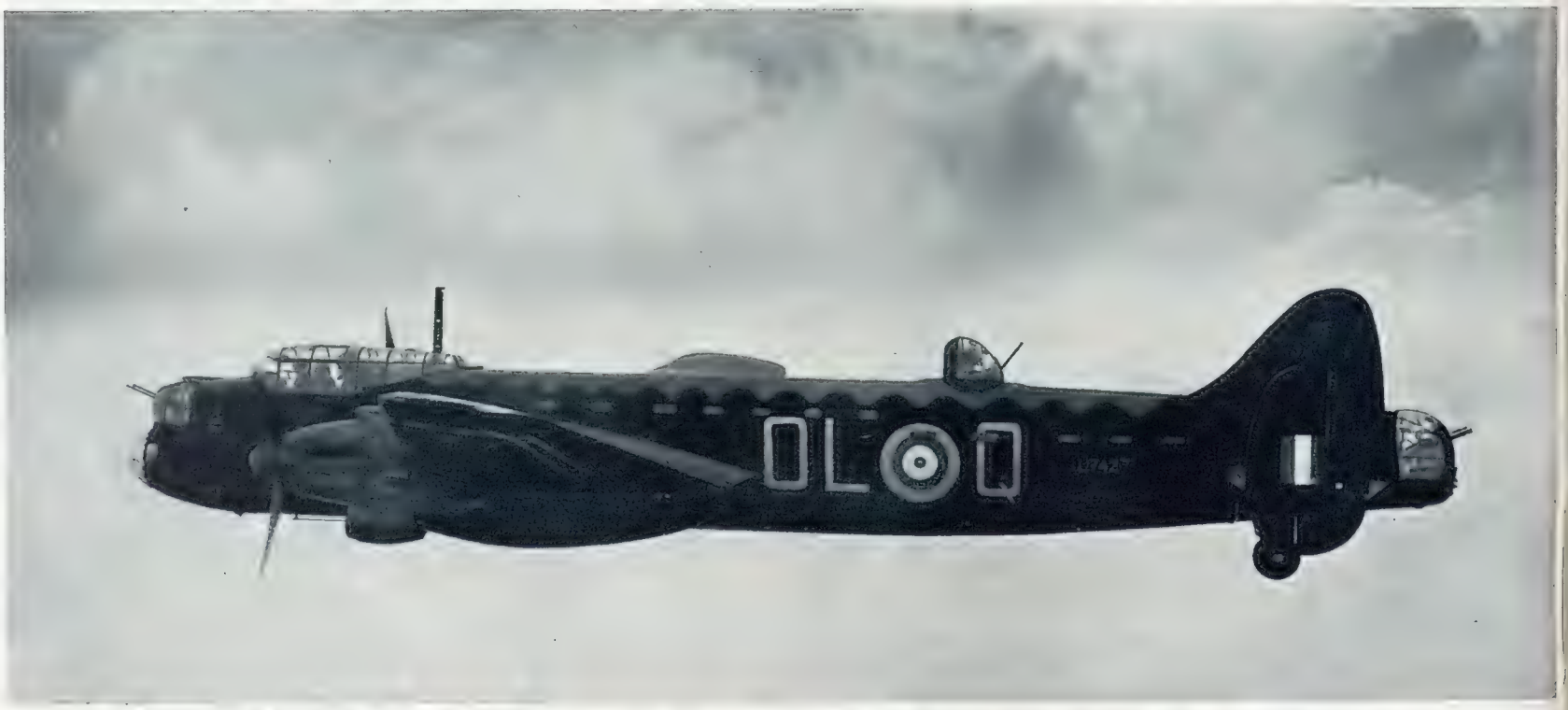
OVER THE TARGET, whilst the attack is being made, MANY OF THE A.-A. GUNS ARE MASKED by buildings, which render the guns ineffective—*Drawing by Roland Davies*

The upper of these two pictures explains partly the reason that the attack on Augsburg was made at such a low level. To attack a bomber determined to shield its vulnerable underside by hedge-hopping, the fighter can only attack in a series of very short bursts : he must also withstand the upward fire from the whole formation below. Then, as shown in the lower drawing, when over the target the bomber enjoys a considerable measure of immunity from A.-A. fire

When the two formations of Lancaster bombers attacked the Diesel engine factory at Augsburg, in Southern Germany, they flew to their objective at a height of only 25 to 30 ft. above the ground. Despite their great size and heavy bomb-loads, they were handled like hedge-hopping Spitfires for hundreds of miles, the pilots having to "lift" them over trees and chimneys and hilltops! Why was this done? Why did the Lancasters not climb up to their very considerable ceiling, and stay there for the long flight over hostile territory? Are not bombers safer high up than low down?

The truth is that few bombers, loaded up with a good weight of petrol and bombs, are capable of climbing beyond the operational height of modern fighters ; they are certainly not so manœuvrable—at least, on the outward journey. And they present a better target for anti-aircraft gunners when flying at the medium heights they *can* achieve. On the other hand, the fighter pilot hates to attack a solid mass of bombers, flying in steady formation low over the ground. With wing-tips almost touching, and their vulnerable undersides safe from attack, the bombers can send up a terrific fire from their gun-turrets ; and the fighter can only get in very short bursts as he dives. "The belly is the most vulnerable part of an aircraft," said one pilot. "Fighters like to dive at you and let you have it in the bomb-racks as they zoom upwards. A.-A. gunners are lost trying to contact a bomber at 30 ft. They and their fighters were putting shells into their own buildings as they tried to hit the Lancasters."

But low flying is a great strain on the pilot and on the navigator. Flying at 300 miles an hour or thereabouts is very "quick" ; and the navigator has to work like lightning to keep his pilot on the exact course if good results are to be secured!



A BIG BRITISH BOMBER, THE MANCHESTER, SHOWING THE UNDERSIDE UNPROTECTED AGAINST ENEMY FIGHTERS, and the heavily-armed "topside"

So far the Manchester has not yet been used for raids in daylight, as has the Lancaster ; but this picture will suffice to indicate why the latter chose to fly to Augsburg at a low level instead of high up. Although well armoured beneath, the underside has no such defensive armament as that provided above. Details of its armour cannot be given, but the armament above consists of a Nash four-gun turret at the rear, and two-gun turrets at the nose and amidships—the latter of curious frontal aspect, as the photograph above brings out well. The bomb-load is carried in one very big compartment in the bottom of the fuselage—the vulnerable spot on which enemy fighters like to concentrate their fire if they can manœuvre beneath the bomber ; by flying low, this spot is shielded from attack. The Manchester is a two-engined aircraft, each motor developing nearly 2,000 h.p.

AN R.A.F. FIGHTER ESCORT DURING A DAYTIME SWEEP OVER ENEMY TERRITORY: The Spitfires accompanying a Bomber force begin to "peel off" to attack enemy fighters

On left—Carrying the war right into the enemy's territory, the R.A.F. have during recent weeks been carrying out operations both by day and night. For the former, the bombers have been escorted by squadrons of Spitfire fighters, ready and eager to engage the Germans whenever the latter decide to give battle. A Spitfire escort, lying well up above the bombers, is a formidable deterrent to any foe. The picture on the left is unique: it was taken in the air from another aircraft, just as the Spitfires began to "peel off"—or, in other words, turned over on to one wing, to swoop down a second later like a hawk diving on its prey: as it turns over, the graceful aircraft shows all its underside and its symmetrical oval wing-span.

The picture below gives an impression of the punch packed by a British fighter. Into its cannon-guns go these big shells, which are capable of blowing a bomber to pieces in mid-air. Similar shells to those going into the Beaufighter are carried by our cannon-gun Spitfires for their sweeps over enemy-occupied territory, which have been such a marked feature of the past weeks.

ONE OF THE BIG DEVASTATING BOMBS CARRIED BY THE WELLINGTONS: The well-tried Wellingtons have proved in operational flights to outstrip even the twin-engined Hampdens and Whitleys. Although comparatively small, they are extremely tough; and they have been improved greatly in performance and bomb-load since the early days of the war

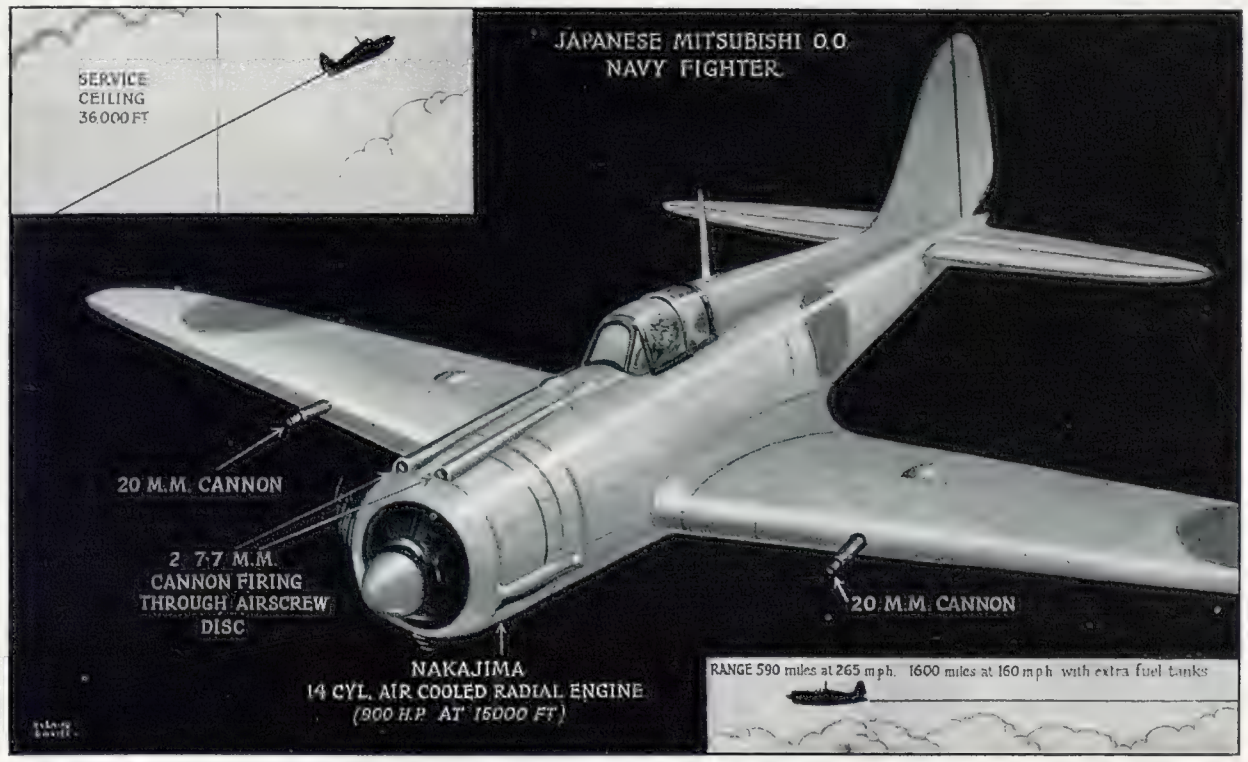
WHAT MAKES A BEAUFIGHTER HIT SO HARD: Drums of shells for the powerful cannon-guns being loaded into the aircraft

In the Far Eastern war zone, the Japanese are making wide use of the Mitsubishi OO fighter, a naval aircraft of which complete and new details are now available, and of which a *Sphere* artist gives a reconstruction here.

The OO is a low-wing monoplane of all-metal construction: it is a single-seater, and its engine is a 14-cylinder radial, air-cooled, which develops 900 h.p. at 15,000 ft. Its armament consists of two 7·7 cannon-guns, firing through the air-screw discs (a method outmoded in Western aircraft) and two of 20-mm. placed in the wings.

Judged by European standards, its armament is not overwhelming: and, if report be true, the pilot is not protected by the armour plating with which Western aircraft are equipped. Nor are the constructional materials of very great strength. Nevertheless, this fighter aircraft is of a higher standard than most people in England have given the Japs credit for.

With a normal flying weight of 5,140 lb., or not quite two and a third tons, its maximum speed is 315 m.p.h. at 10,000 ft., and the service ceiling is 36,000 ft. The range is reported as being 590 miles, but this can be extended to 1,600 miles at 160 m.p.h. by the addition of external fuel tanks. Other features of the OO are an hydraulically-controlled retractable undercarriage, fitted flaps, a transparent perspex cockpit cover and a single fin and rudder



THE FIGHTER AIRCRAFT WHICH THE JAPS ARE LARGELY EMPLOYING IN THE PACIFIC—The Mitsubishi OO Navy fighter, pictured in detail for the first time (see notes at left)—*Drawing by Roland Davies*

MEN IN THE SCOTTISH COMMAND COME ASHORE IN SPECIAL LANDING CRAFT UNDER COVER OF A SMOKE-SCREEN: A scene which might well be duplicated during ac is armoured as protection for the soldiers during their passage to the objective and it has a special bow for running right up on to a shelving beach; the cr and all are fully equipped and armed. Exercises aimed at toughening the troops and teaching them the technique of offensive operations are no

TRAINING UNDER THE MOST STRENUOUS ACTIVE-SERVICE CONDITIONS: Men crawling through the "mud bath" at a Divisional Battle School in the South-Eastern Command

INSTRUCTORS FIRING ROUND THE MEN whilst the la special training in battle drill whil

At the Divisional School where these two pictures were taken the students undergo a two-weeks course, which consists of crawling through wire, running along muddy di be ammunition all around them. The men are also subjected to attack by low-flying aircraft, when charges are fired at them to repr

The BRITISH ARMY PREPARES for OFFENCE

g actual operations along the enemy-held coast. The vessel troops carry scaling-ladders to surmount beach obstacles; nor being carried out all over the country

hi latter charge through a barbed-wire obstacle during the hi is now going on throughout the country

dr hes and through a wall of fire, whilst instructors fire live pr nt live bombs!

AT A "TOUGHENING-UP" BATTLE-DRILL SCHOOL FOR OFFICERS AND N.C.O.S: Crossing the river by a wire bridge, with high explosives going up under him. One false step and the man will fall into 12 ft. of water: Officers and non-commissioned officers of the British Army are now receiving realistic "toughening-up" training under conditions as near to actual warfare as possible at Schools of Battle Drill established all over the country. During training they have to make their way through and over the roughest of country, with bullets whistling round them and live bombs bursting in their midst! Every device and method is being used to inculcate in them a ferocious fighting spirit which they will pass on to their men on their return to their units

CROSS-COUNTRY RUNNING AND ROUTINE TRAINING IN THE NORTHERN COMMAND: This is part of a regiment which has already seen service in France—The Royal Warwickshires, now in the Northern Command. Included in their training is a fortnightly five-mile cross-country run in full kit: at the end of this the men have to dig themselves in at selected points with merely their entrenching tools. This picture was taken as men of the regiment went hurtling through a wide stream during the course of their arduous run

THE SAILOR'S WORST ENEMY

Fire at Sea on a Modern Warship

By M. G. GREYSMITH

" There 's fire in the cabin,
fire down below."
—*Chanty.*

NEXT to the sea itself, and almost as incalculable a foe, fire still remains the sailor's worst enemy.

It is hard to realise that a modern warship, so essentially a thing of steel, can be gutted and sunk in a few hours if fire gets a hold. Yet the landsman need only cast his mind back to the Crystal Palace, which one would have thought fireproof if any building could be, and yet which was destroyed in one of the most spectacular fires London has seen.

Any warship must, in fact, carry tons of highly inflammable material, quite apart from explosives. After all, she is the floating home for months on end of anything up to 1,500 men. In the event of a really big fire the steel hull becomes a furnace in which everything is consumed.

In peacetime, fires are exceedingly rare. In the course of twenty years' service, in which many long passages were made with the old " Grey Funnel Line," the writer never personally knew of a fire in any of H.M. ships at sea, though some did occur while ships were in dockyard hands. The prospect was so remote one doubts if it ever seriously occurred to any of the hundreds of men who lived, slept and had their being literally on top of a powder magazine for weeks on end. The record is certainly a great tribute to naval discipline. The carelessly thrown match or cigarette-end is a much greater menace ashore than afloat, for smoking at sea is controlled as to time and place.

In war, of course, it is a different story, and fire has been the end of many a gallant ship and crew, with the loss of the *Sydney* after her action with a raider, as a recent example.

Nothing is worse than shell-fire at fairly short range for starting uncontrollable fires. Torpedoes hit below the water line where, though they may sink you, they cannot set you ablaze. Bombs, as a rule, seem to lack sufficient punch. But when a good salvo hits home, serious fire is practically inevitable. It is not that special incendiary shells are used, or that one's own ammunition is necessarily bound to be set off. The damage appears to be done by the huge volume of flaming gas which accompanies the bursting of the shells and particularly by the red-hot steel splinters from the shell cases which are showered around. These are driven deep into any woodwork near by, through bulkheads and into inaccessible spaces behind pipes and control gear. From one shell-burst, the fire parties may be faced with dozens of outbreaks. Moreover, the ship will be steaming at fair speed, so that a good wind will be there to fan the flames, which will spread aft under the draught. Since the officers' living-quarters are also situated aft, the stern of a ship is probably more vulnerable to fire than any other part, the air spaces being larger and (though officers' quarters are by no means luxurious) the quantity of inflammable material greater.

Drawing by Montague Dawson

FIRE AT SEA DURING A NAVAL ACTION: A hit at the base of the bridge superstructure sets a British cruiser alight

In an engagement at sea, it is not the torpedo or the bomb which does the most damage, although (as the drawings on these pages show) aircraft can do a considerable amount of "local" harm: but "nothing is worse than shellfire at fairly short range for starting uncontrollable fires. . . . It is not that special incendiary shells are used, or that one's own ammunition is necessarily bound to be set off. The damage appears to be done by the huge volume of flaming gas which accompanies the bursting of the shells and particularly by the red-hot steel splinters from the shell-cases which are showered around. These are driven deep into any woodwork near by. . . ." The vessel in Mr. Dawson's drawing is a cruiser of the Southampton class, which have performed great services during the present war

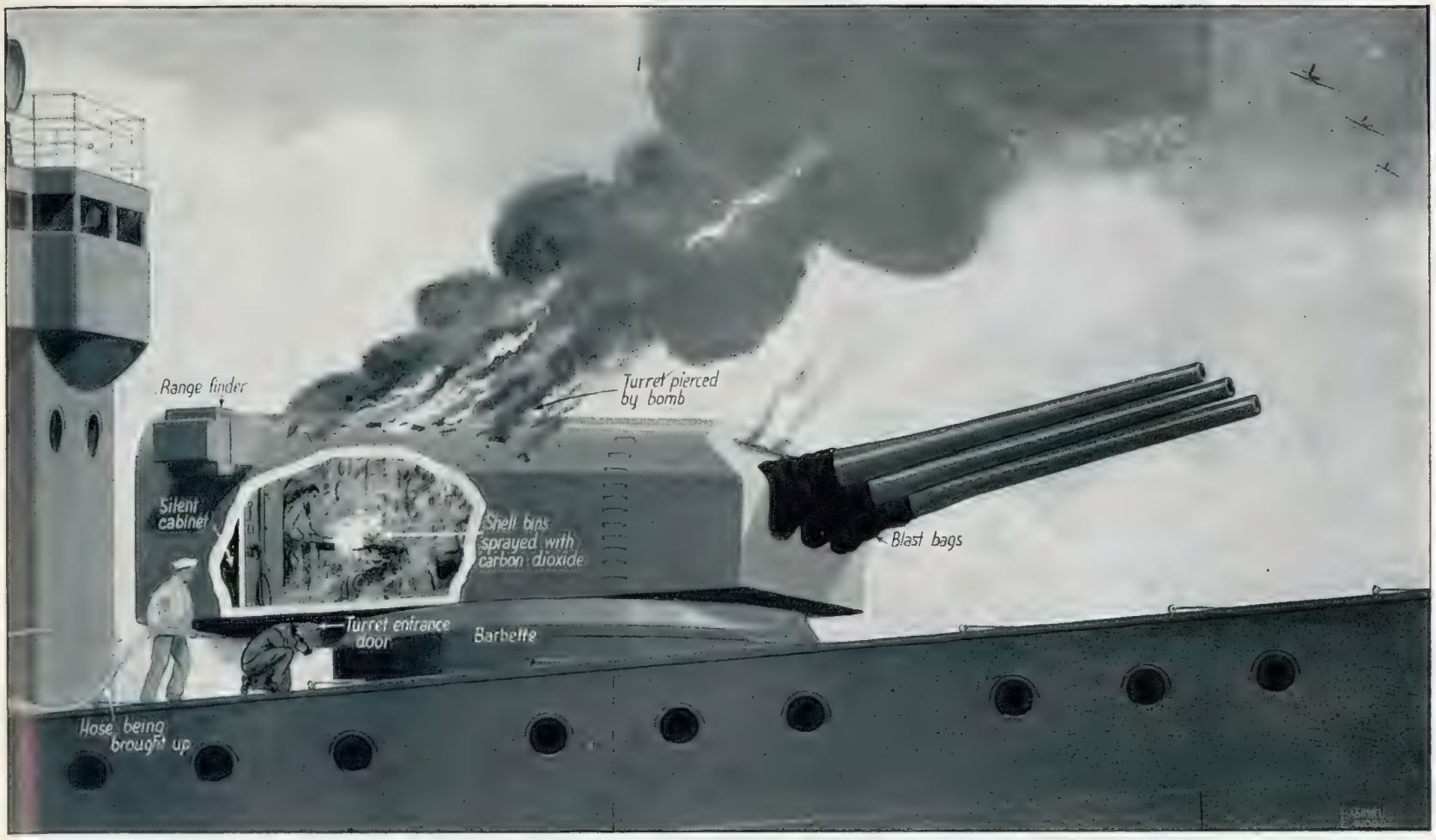
ONE OF THE DANGERS FOR A CRUISER IS THE BOMB FROM ABOVE: In the Navy, the danger of fire arising from bombs is not considered serious: heavy bombs have destroyed naval vessels, of course, and probably will do so again. But, generally, the usual type of aircraft bomb is not thought to possess sufficient punch. The above picture was taken recently in the Mediterranean and shows a British cruiser in action against aircraft, with all her guns at a good elevation: the "bone in her teeth" (in other words, her bow wave) indicates her great speed

When a ship goes into action, those of her crew who have no other specific duty to do in worknig the ship or fighting her are divided among the repair parties, led by the carpenters, and the fire parties. They are not an over-numerous band, and their task is often complicated by the structural damage done by the shells at the same time. The seat of the fire may be inaccessible, or the boilers may have been hit, and power for the pumps cut off. Or in a really bad case, the outbreaks may be so numerous that one or more magazines will be involved.

A potent cause of trouble in fires are the electric cables with which the interior of a modern ship is festooned. They include some much larger than those which hang on the walls of the London Tubes, threading the ship from end to end, so that once the rubber is well alight they carry the flames everywhere, besides adding to the smoke and fumes. The paint stores, the large quantities of hausers, coir fend-offs and canvas, spare timber and boat gear, the small arms ammunition, signal flares, etc., will all add to the blaze if they become involved.

The replacing of most of the steam pinnaces and cutters by motor boats means that all ships must carry some petrol while most ships of the cruiser class and upwards, carrying at least one plane, must find stowage for a considerable quantity. The ship's own fuel oil does not constitute a fire risk at all. It is a heavy, viscous fluid which would extinguish a match if thrown into it.

Naturally, in view of the difficulty of fighting a fire at sea, every attempt is made to ensure that fires will not start, or will be detected almost immediately. Practically all timber work is of teak,



A FIRE BREAKS OUT IN A WARSHIP'S TURRET AS THE RESULT OF AN ENEMY BOMBING ATTACK—*Drawing by L. Ashwell Wood*

The most dreaded cry in a warship is that of "Fire!"—especially when the fire has broken out in one of the gun-turrets. Owing to the presence of live shells, which are usually placed in the bins ready for loading, quick action is necessary. Carbon dioxide, in bottles, is used for smothering the flames until the Fire Party arrives with hoses and fire-fighting appliances. The paramount job is to stop the heat penetrating the metal of the shells and detonating them; and also to stop the flames going down through the barbette to the magazines below, where a cordite fire would probably be fatal to the whole ship. The drawing above gives a representation of a typical gun-turret on an 8-in. American cruiser

which is much less prone to burn than other timbers. The electrical gear is extraordinarily heavy and massive and mostly of the flame-proof type as used in coal-mines. Temperature indicators are installed which enable an engineer, by rotating a selector switch, to read on a dial the temperature of a dozen compartments from stem to stern. In some ships, an ingenious air-sampling device rings a bell immediately smoke becomes present in the atmosphere of certain compartments. A constant sample of the air is taken by a small fan, which forces it through a tube in which a light is shining on to a photo-electric cell. If smoke is present in the air the amount of light received by the cell is reduced, and a numbered alarm is rung.

The main magazines are usually capable of being flooded, and in ships of any size have refrigerating apparatus to prevent deterioration of the explosives. A careful log is kept of the temperatures, for cordite is liable to ignite spontaneously if exposed for long to the heat of a warm climate. In capital ships, the magazines are situated at the base of the barbette, the big cylindrical shafts on which the turrets turn. They are below water-level, and protected by a heavy rubber belt. An actual hit direct on the magazine is thus rare, but it is possible for a hit on the turret to set off the magazine by the flash of the explosion travelling down the barbette, which is used as a lift shaft for the shell hoists. The loss of several of our battleships in the last war was attributed to this, and steps have been taken since then to reduce, as far as possible, the risk of the same thing happening again. There must always (in action) be a certain amount of ammunition present in the turret, and the ignition of this, if the turret is hit, is virtually certain.

Cordite does not necessarily explode if it catches fire; much depends on how tightly it is stowed, for example. But whether it explodes or not, it does give off large quantities of carbon monoxide—a deadly gas which adds much to the danger of fire. Conversely, a fire may detonate shells in an adjoining compartment without actually reaching them; it is simply a question of the heat attaining a point at which the detonators will explode. Given time, of course, all but the worst fires can be stopped. In battle, however, time is likely to be the one thing unobtainable. Moreover, a ship on fire always attracts the attention of the enemy, and receives more punishment just at the time when it is most difficult for her to manœuvre or reply.

DESTROYERS ARE VERY LIABLE TO OUTBREAKS OF FIRE, SINCE ONE OF THEIR DUTIES IS TO CHALLENGE THE BIGGER ENEMY SHIPS. References to fires breaking out on the stern sections of destroyers have not been infrequent in this war—*Drawing by W. G. Whitaker*

A destroyer is usually moving at a high speed when in action: beneath its stern portion are the officers' living quarters, with correspondingly greater air spaces; much material is stored aft—consequently, when the vessel is hit, with the wind fanning the flames, fires are to be expected. Frequently during the present war such things have happened, as depicted in Mr. Whitaker's drawing above, where the stern of a destroyer is seen ablaze, whilst the gunners in the forward part of the ship are still vigorously serving their guns

A TENSE MOMENT DURING THE MINELAYER'S CRUISE—Early morning; and as the ship moves slowly along its carefully plotted course, the mines are dropped. Suddenly, from behind a cloud, appears a plane. The alarm sounds, and the gun crews train their weapons, just in case. Meantime the minelaying continues. (The vessel shown is the cruiser-minelayer "Adventure," built in 1922, rebuilt in 1932, and refitted in 1939.)

The WORK of the MINELAYERS

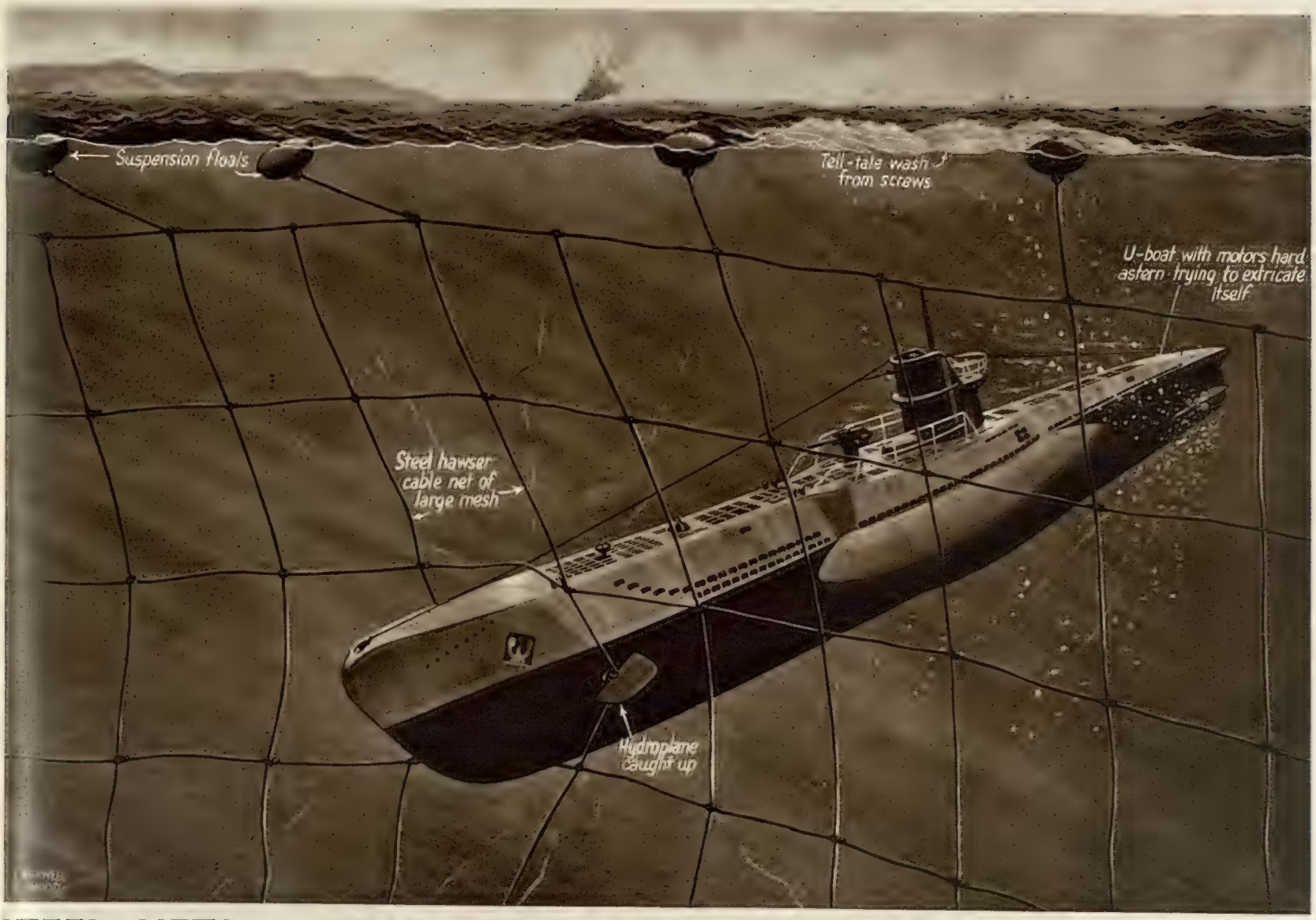
—Drawings by Wm. McDowell

Minelaying is a very necessary part of all naval warfare, and particularly so for Great Britain, which has a great volume of shipping to protect and a long and exposed coastline. The mines can be laid by almost every class of vessel: there are, of course, special minelaying ships in the Royal Navy; and converted cargo-vessels have also been largely employed.

In this country, at the outset of war, we possessed one special "cruiser-minelayer," the *Adventure*; and four other vessels, of the Latona class, were building for completion in 1940-41. But, undoubtedly, a great number of other ships have by now been adapted for this important work. *Adventure* (shown in the upper drawing) is a vessel of 6,740 tons, which carries a complement of 400: she was laid down in November 1922 at Devonport, and completed in May 1927: since then she had been rebuilt in 1932, when her original flat stern was replaced by that shown in our drawing, and refitted in 1939. With a speed of 28 knots—the equal of many cruisers—she carries four 4·7 anti-aircraft guns, four 3-pounders and eighteen smaller guns. She is equipped to carry 340 mines. Note, in the drawing, the curious arrangement of *Adventure's* funnels.

The drawing on the right shows the various stages of sowing a minefield: here is a key to the letters marked in the drawing—*A*, the mine and sinker being dropped; *B*, the mine being buoyant, the unit rights itself during the descent; *C*, on reaching the bottom, a striker operates the winch, which then pays out the prearranged length of cable; *D*, the mine comes to rest at an arranged depth below the surface

THE PROGRESSIVE STAGES OF MINELAYING IN WATERS WHERE THE DEPTH IS KNOWN: The necessary amount of mooring cable is set from soundings, and the mine then automatically takes up its proper position (see notes at left)



CAUGHT LIKE A HERRING IN A DRIFT-NET: How the submarine, once it is trapped, is ensnared by its "gills" and is literally choked to death—*Drawing by L. Ashwell Wood*

The mesh of the new, larger anti-submarine nets, which are now being constructed in the United States, allows part of the submarine to penetrate in the manner shown; but any external projections, such as hydroplanes, guns, etc., are then liable to become entangled in the strong steel hawser cable. The nets are being erected to guard harbours, bays and such strategic points: any local disturbance created by a U-boat attempting to escape would soon be spotted by patrolling guardships, which would then know how to dispose of their victim! These nets are stated to be a great improvement on those used in the last war, which were merely intended to keep submarines out through the smallness of their mesh—not to trap them

STEEL NETS to TRAP the U-BOATS

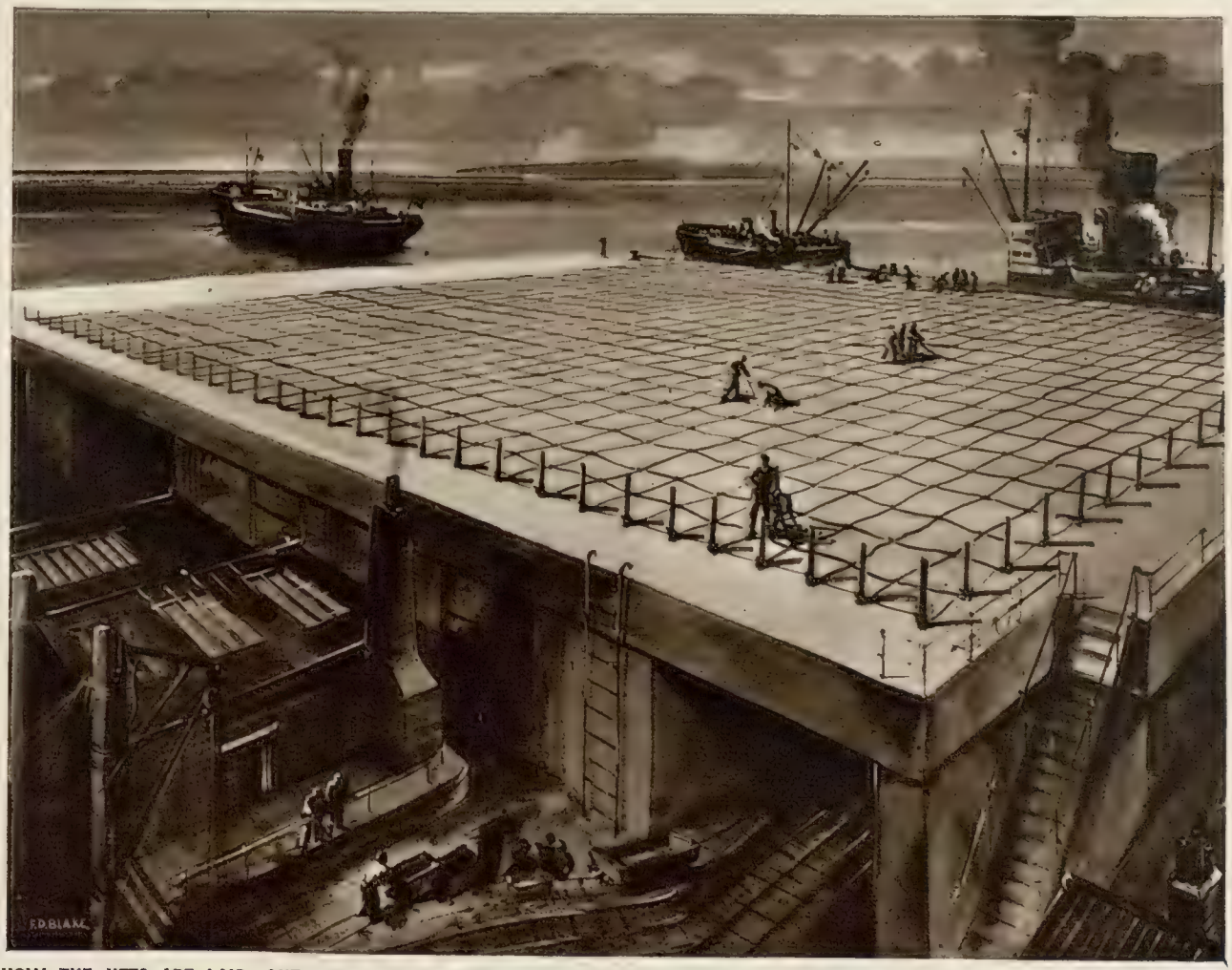
A New Idea from the United States

In the last war, nets were used as anti-submarine defences at British, French and Italian naval harbours and bases. A large establishment was organised at Shotley, near Harwich, for their production, at which 597 miles of nets, a dead weight of 105,150 tons, were turned out by naval labour. To-day, the United States have gone one better than this! To begin, it has been known for some time that American shipyards are engaged on the task of completing thirty-two net-laying tenders for use with the Navy: now it has been disclosed that, at a naval depot in a tiny, isolated coastal town, a great work of net-building is going on.

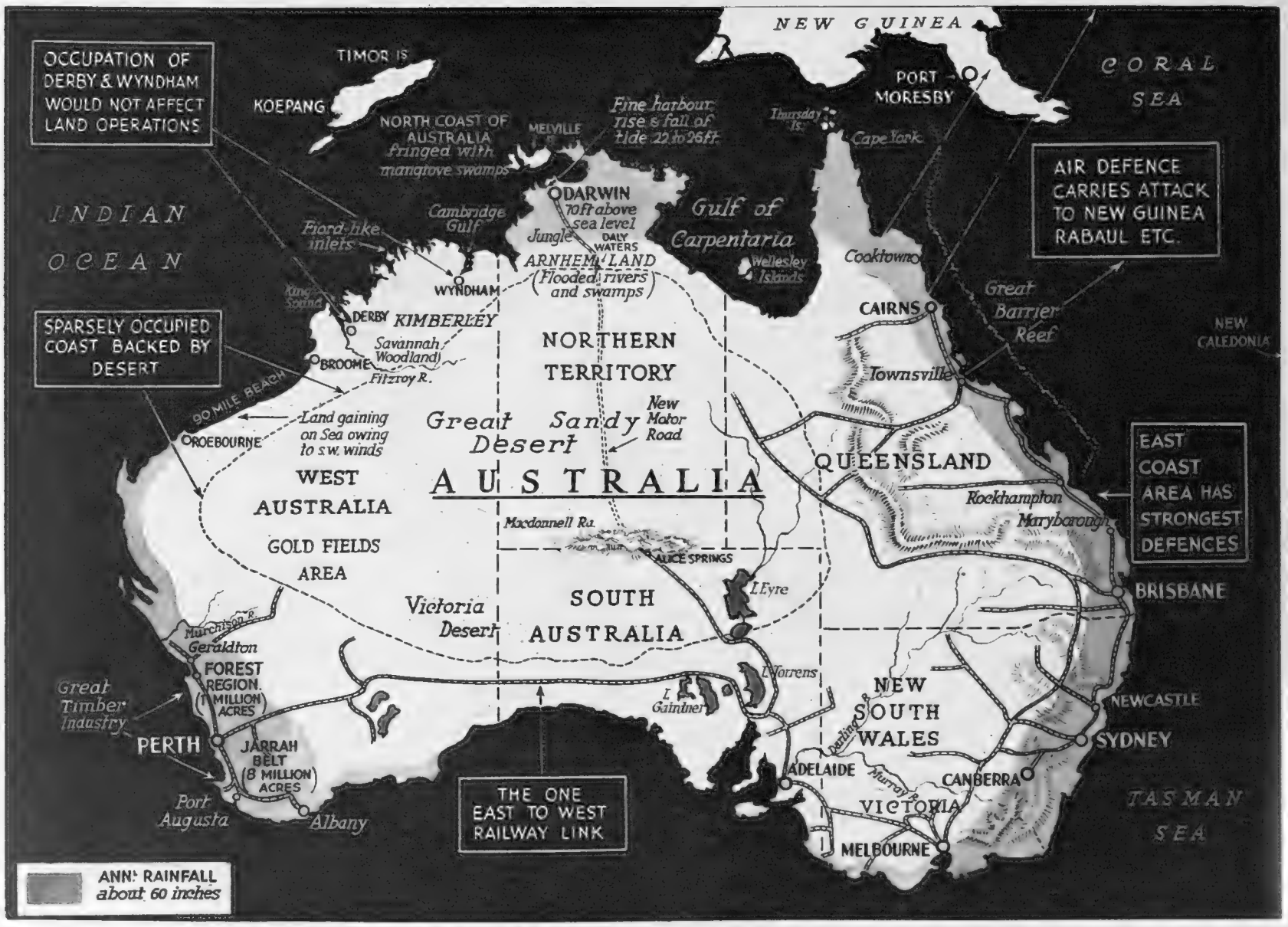
But—the nets are of a special kind: they are composed of heavy steel wire, whose stiff and unyielding nature gives the appearance of a heavy duty cable, such as is used for the toughest tasks. The process of manufacture is simple, but when completed the net has squares of about two yards to each side. These are hung at vital strategic spots along the coast, and when a U-boat is caught in one of them it is impossible for it to escape.

The machine-shops of the net-making depot are built on slightly sloping ground, covered with a vast rectangular concrete pier near the water-line. The nets are strung on stakes driven into the pier, and from this point, too, they are loaded into the specially constructed vessels which transport them from factory to harbour mouth.

Hundreds of workers are employed on this task and nets are being produced as fast as possible. The upper drawing shows how the U-boats are trapped and kept "for keeps" once they push their noses into the steel meshes; and the lower drawing shows how the nets are staked out at the special pier, ready for transshipment



HOW THE NETS ARE LAID OUT ON A VAST RECTANGULAR CONCRETE PIER NEAR THE WATER-LINE. From here, after their completion, it is a simple matter to transfer them to the specially constructed net-layers for transport to the selected strategic spots they are to guard—*Drawing by F. D. Blake*



WHERE AUSTRALIA MIGHT HAVE TO MEET AN INVADER FROM THE NORTH-WEST, showing the natural defences of the great southern continent by reefs, swamps and desert. The grey tone indicates the rainfall of 60 ins. a year and gives a good indication of the dangers of the interior, where water is practically non-existent—*A Special* Sphere *Map.* (*See* notes below)

THE DEFENCE OF AUSTRALIA

The Actual Character of the Vital Northern Coastline

Described by DONALD COWIE

EXACTLY what kind of country would meet the first Japanese landing parties if an attempt were made to invade Australia from the north? The answer depends on the part of North Australia chosen, for the 3,000-mile coastline that stretches from extreme north-west to extreme north-east flaunts all the variety of a complete lesson in physical geography.

Thus an invasion launched from, say, Java would strike the Australian coast approximately above Northwest Cape, and would find shores not unlike those of the remote edges of England, now with cliffs, now shelving to pleasant beaches, backed by comparatively fertile pasture-land. But soon that ceases, and as the coast sweeps upwards in its north-easterly direction, a remarkable natural phenomenon known as the Ninety Mile Beach is encountered. This continuous verge of flat sand extends from the De Grey River nearly to King Sound, and is a western extension of the great inland desert, so would prove inhospitable to an invader. Either he would have to bring water supplies with him, and take the risk of presenting a perfect Dunkirk target to aircraft, or he would have to rule out this stretch altogether.

Accordingly the invader might be attracted more by two large inlets that change the character of the coast once again after the Ninety Mile Beach. These are King Sound and Cambridge Gulf, both of them fine natural harbours on the face of it. Their value for shipping is discounted, however, by an extraordinary tidal range, the rise and fall in King Sound being 46 ft., that in Cambridge Gulf being 20 ft. But if this obstacle is ignored, the coast and hinterland hereabouts might certainly attract the invader. Shores are still fairly accessible, not as yet too tangled with tropical growth. The Kimberley country behind has a reasonable climate; cattle, sheep and horses are reared there with success. Derby, in King Sound, and Wyndham, in Cambridge Gulf, are only small cattle-ports, but have port installations of a kind, and doubtless they have been furnished with airfields and other valuable facilities in recent times. Outside this part of the coast innumerable small islets of the favourite Japanese kind were formerly well known to Japanese pearl-fishers.

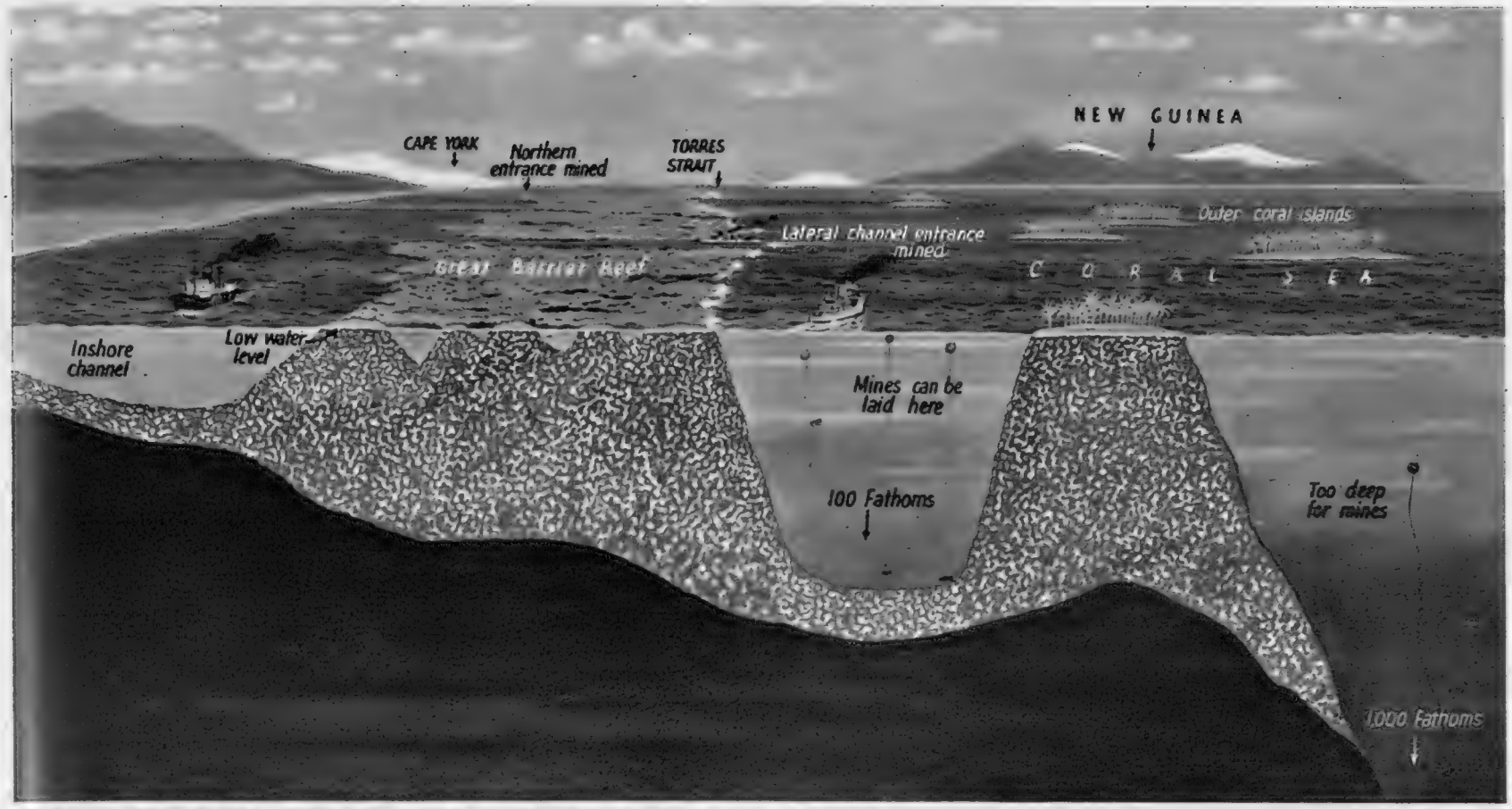
But supposing the Japanese descended directly from Timor on the key sector of the coast, that which extends from Cambridge Gulf to the Gulf of Carpentaria, containing the vital port of Darwin. The first objective might be Melville Island, Darwin's natural cover from the sea. This famous centre of the pearl fisheries, about 14 miles from the mainland, is 75 miles long by 37 broad, covered with mangrove swamps and dense forests, inhabited by strange animals and primitive aborigines. The real tropics have been reached.

Thus the far-spreading coasts which flank Darwin to east and west are thoroughly unpleasant. It is easy to say "mangroves" and visualise trees growing by the water's edge. The reality is beyond the imagination of those who have not experienced it. Brackish waters and thick, decayed vegetation form hundreds of miles of sea-edge swamps, and the mangroves grow thickly in these like arboreal octopuses. The mosquito is but one of the many dangers which breed under these ideal conditions, dangers that range from alligators to leeches. Apart from the alligators in these deep, treacherous streams, the banks are invariably made impassable by eternal thickets of the paper-bark tree.

But that is not by any means the end of the northern coast. If the Japanese consolidated in New Guinea and decided to attack from that base, they would encounter yet another variety of Australian scenery. Perhaps they would not attempt to land in the Gulf of Carpentaria, the shores of which dip deeply into the continent—too deeply—but it would be unwise to overlook this comparatively unknown region. Thus a dotted group off the coast at the deepest part of the great gulf, known as the Wellesley Islands, enclose a roadstead capable of development into a first-class port. The shores become comparatively unobstructed and sterile again, because rainfall is sparse, but several large rivers and some half-finished railways, like the one starting at Normanton a short distance inland, might afford means of striking at the eastern states.

But the shores of the gulf are 600 miles from New Guinea, and it seems much more likely that the invader would take the short cut, jumping across Torres Strait to Cape York Peninsula, the eastern end of the northern coast. And here he would find his final variety of coastal scene, consisting mainly of a series of fine, breezy headlands separating smooth, navigable bays. His initial point of attack would doubtless be Thursday Island, one of the many islands which make stepping-stones across the strait, but furnished with important defence installations, good jetties, and the headquarters of the north-eastern pearl fisheries. The island, and most of the Cape York coast, has a comparatively equable climate, thanks to the surrounding sea, though tangled vegetation again obstructs potential landing-places and makes the interior often impenetrable—always, where there are no roads. Once again, a lodgment might be made, but awkwardly.

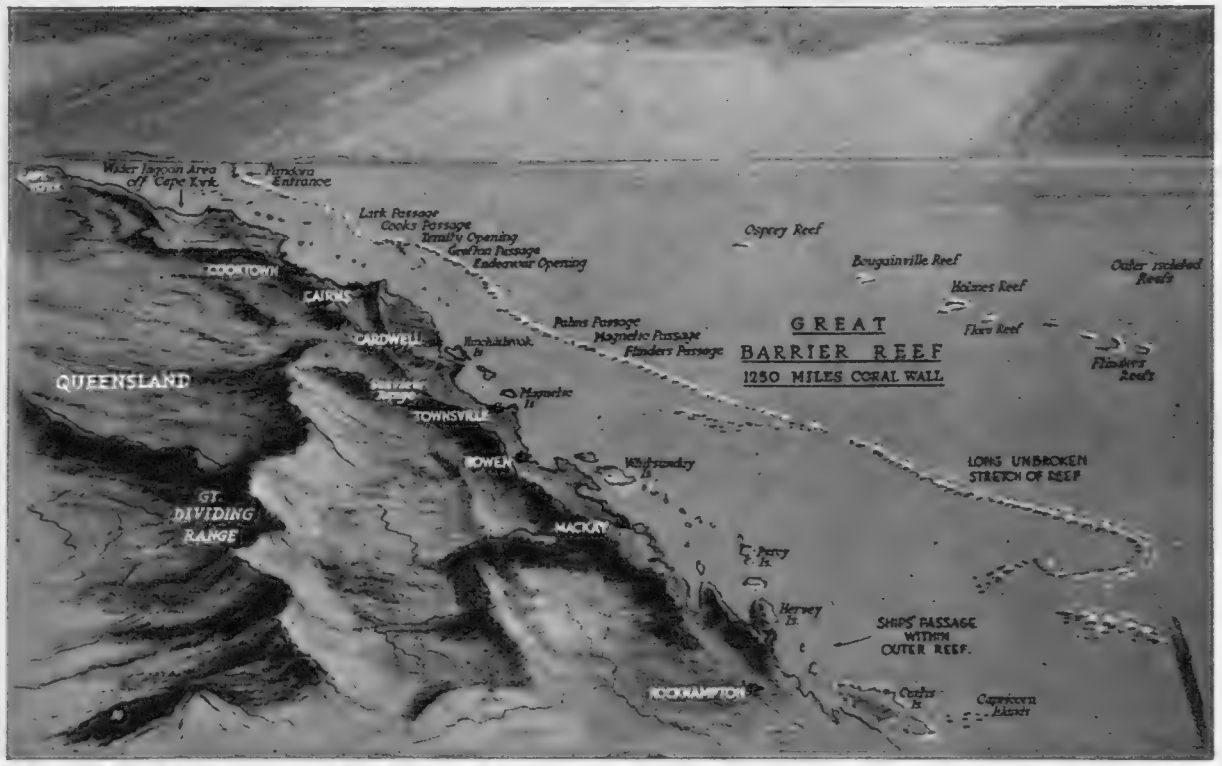
IN COMMAND IN THE AUSTRALIAN WAR ZONE: General Douglas MacArthur, of the U.S. Army, with his wife. She was the General's constant companion during the battles on the Bataan Peninsula, and with her young son and her husband flew from the Philippines to Australia



AUSTRALIA'S GREAT NATURAL PROTECTIVE BARRIER AGAINST INVASION BY SEA FROM THE NORTH-EAST—The Great Barrier Reef, one of the wonders of the world, and whose passages could be mined to prevent the entrance of hostile naval craft—*Drawing by L. Ashwell Wood*

For a distance of 1,250 miles down the east coast of Queensland runs the wonderful Great Barrier Reef, from the Torres Strait in the north to within 200 miles of Brisbane in the south. Mining of the Reef would appear to be an essential if Japanese invasion forces from the north-east are to be kept away from the region behind the Barrier. On the inshore side, there is a deep-water channel which provides navigation for ships. At several points along the outer edge of the Reef, lateral channels connect the inner with the outer, or Coral, sea. There is also a northern entrance which would have to be mined, too, if enemy warships are to be kept out effectively. Mining is impracticable among the outer coral islands, as the depths are immense and the normal mine cable is only about 250 fathoms in length. The Reef varies in its distance from the shore, from 10 miles to about 150 miles. The drawing reproduced here shows the formation of the Reef and its outer islands, and the comparative depths of water in the various regions

THE GREAT BARRIER REEF, which is contiguous with the outer edge of the Continental Shelf. The lagoon area within the Reef provides a good channel for shipping which is used by many vessels



THE OPENINGS AND PASSAGES IN THE 1,250 MILES CORAL WALL. Running parallel with the coast from Rockhampton to Cape York, the Reef is a real barrier to invasion. The picture below shows the aspect of part of the Outer Barrier Reef—a menace to the mariner—*Drawing by Percy Home*

The Great Barrier Reef covers an area of 100,000 square miles—the greatest oceanic feature of its kind in the world. It acts as a vast natural breakwater, the channel separating it from the Queensland coast providing a safe sea passage of extraordinary tropical beauty. Now that war has come to Australasia, it should be possible to use the Reef as an anti-invasion barrier by mining the well-marked passages across it and at its northern end in the manner suggested in the drawing at the top of this page! The Barrier has been formed during the course of countless ages by living organisms—the coral polyps. For conditions favourable to the growth of reef-building corals the temperature of the water must not fall below 70 deg. Fah. There is no coral on the western margin of continents: this is due to the fact that in the Trade Winds Belt the winds are on-shore on the east margins of the continents and off-shore on the west, so that warm surface waters are piled up on the east by means of the currents caused by the winds

BUILDING THE U.S. "BURMA ROAD" TO ALASKA: All through the bitter winter these American road-makers lived in tents, but all were supplied with Arctic clothing to withstand the terrific cold

THE GREAT ALASKAN HIGHWAY

First Pictures of the New Link from the United States, through Canada, to the Air Bases in Alaska

HOW THE ROAD RUNS, through British Columbia up to Fairbanks. From the wheat centre of Edmonton for 1,200 miles, the Alaskan Highway runs to Fairbanks, the huge American airport and defence base in Alaska

ACROSS THE FROZEN PEACE RIVER A PLANK HIGHWAY IS LAID to carry heavily-laden trucks at a wary pace of three miles an hour. After the thaw this spring, a stout ferry will be used: over lesser rivers along the route, pontoon bridges will be erected. Regardless of the weather, natural obstacles or human failings, the relentless drive northwards was continued all through the past winter. Now the results are beginning to tell!

HEADQUARTERS OF THE U.S. ARMY IN CANADA is this five- and ten-cent store in Dawson Creek, between Edmonton and Fort St. John. Dawson City is much farther north

THE RAILWAY ("End of Steel" to the U.S. engineers) ENDS AT DAWSON CREEK. Up to this point trains are hurrying lorries and road-making machinery to push the Road farther and farther north towards Alaska

Under expert hands, bulldozers, caterpillars, graders and draglines carve out the narrow pilot road which will later be widened. Snow was light this year, but temperatures were 30 to 50 deg. below zero. The surveyors used dog teams to take their instruments into the Far North

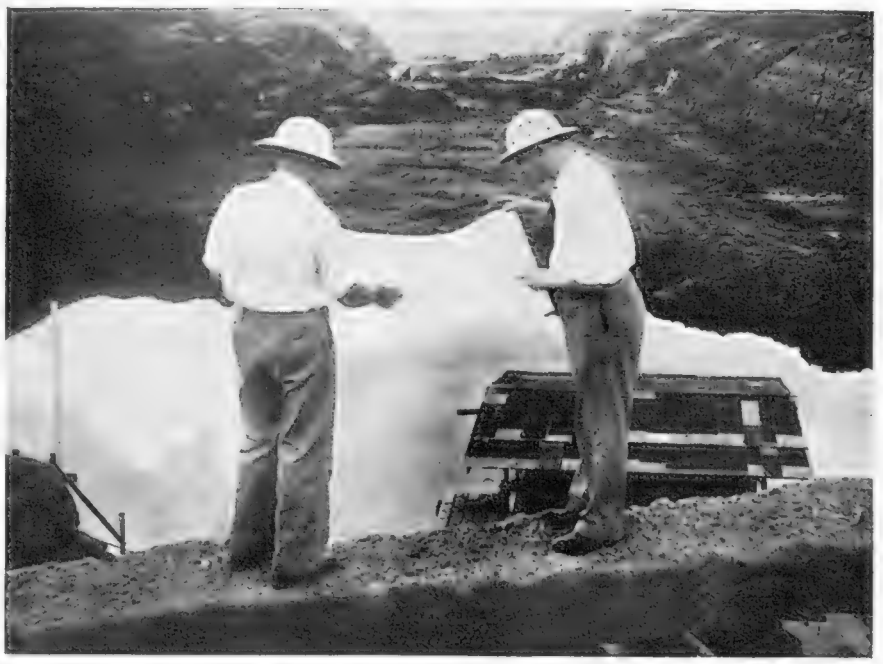
We have already published details in *The Sphere* concerning the great new highway which is, at this moment, in course of construction through the frozen wastes of British Columbia and the Yukon. Here we are enabled to publish a first set of pictures showing the work actually in progress. From Edmonton in Canada to Fairbanks in Alaska is a distance of 1,200 miles: but the latter point is an important air base and a possible link with Siberia and Russia, as well as the air route to the great American naval base at Dutch Harbour in the Aleutian Islands. All through the bitter winter of 1941-42 the work went on, but the need for its completion is urgent. Owing to Japan's control of the Pacific, the Alaskan highway is now the quickest route to Chungking, as it is to Russia—for some of the supplies that country needs. United States engineers have planned the road; American soldiers and civilians are helping to build it; and Canada is laying out the airfields *en route*. For nearly a year now work has been going steadily ahead. One day bombers on the way to Japan may be roaring overhead, whilst supplies for the air bases from which they are operating may be hurtling along the road beneath!

TONS OF SUPPLIES OF ALL KINDS ARE UNLOADED FROM THE BIG LORRIES, for the use of the U.S. soldiers and also for constructional work on the Road. Long after Christmas had come and gone, a complete quota of Christmas-trees was discovered amongst the goods received at this point!

THE DEFENCE OF THE CANAL ZONE: Winding through the heavy Panama jungle, with banana-trees lining its route, this auto-car engine and flat cars are used during peacetime to haul bananas to market. To-day it is used to haul the semi-weekly rations to an American anti-aircraft position defending the great Canal

PANAMA DEFENCE: One of the vital regions for the United States is the Panama Canal zone. The three pictures reproduced here detail something of the defensive work now in progress in this region. The upper of the two pictures on the right shows road-making crews at work on a section of the new Trans-Isthmus Highway which is being built at top speed: this is intended to link the two ocean terminals of the Canal, so that defence forces can be rushed from one end to the other if necessary within two hours. A great rush was made to get the work completed before the coming of the rainy season, for when it rains here—it rains! The Canal zone has a rainfall of 500 ins. in a year. The lower picture shows engineers engaged in checking the excavations made for a third set of bomb-proof locks on the Canal, to permit the rapid passage of the U.S. Fleet should occasion arise. The work for the new Gatun locks was started less than a year ago, and workmen are now busy twenty-four hours a day rushing the task to completion

EXPEDITING THE CONSTRUCTION OF A GREAT NEW HIGHWAY IN THE CANAL ZONE: This road is being built to link the ocean terminals of the vital canal across the Panama Isthmus, so that the latter can be covered by road in two hours



STILL ANOTHER SAFEGUARD FOR PANAMA: Plotting a third set of locks so that the U.S. Pacific Fleet can pass rapidly between the Pacific and Atlantic Oceans

STAMP COLLECTIONS AND THE WAR

How World Events Have Affected the Great Body of Philatelists: the Smuggling into this Country of Rich Collections from Abroad: and Some of the New Stamp Issues and Their Present-day Worth

Described by CHARLES GRAVES

IT was a curious scene. Nineteen men and a woman were sitting round a long green-baize table and bidding pounds and pounds for little bits of paper. It was one of the weekly stamp auctions in Arundel Street, Strand. As I sat and watched, my companion, Mr. Kendrick Harmer, told me that, like good pictures and good diamonds, stamps have also gone up in value. But he did not call them postage stamps. He called them "material." The cheaper material changes hands at much the same price as before, but the perfect specimens, particularly commemorative issues, have risen fast. Take the Silver Jubilee stamps of 1935. Their face value is £5, but the complete collection of issue for the sixty-two Crown Colonies and Dominions (about two or three hundred) rose to £12 10s. in 1939 and now stands at £34. Other modern commemoratives have also shot up in value. The Hong Kong Centenary issue, which cost half a crown a set last year, have quadrupled in price. That, of course, is because Hong Kong is now off the map.

World events affect philately. The Australian group (the whole of Oceania, both colonial and foreign) have risen steeply in value because of the spotlight cast upon them by the war. North Borneo, Labuan, and Straits Settlement stamps have also risen in public interest and, therefore, price.

In the stamp collectors' weekly trade journal the eyes of the collector are invited to Madagascar. As the writer says, it is a little-known country which has gained recent prominence owing to its strategical position. Until now, being only one of the great number of French colonies, it has not received any marked attention from English collectors. Yet the stamps "are far from being without interest."

There is no doubt that stamp-collecting teaches geography and history, and with a collection of European stamps you can trace the rise and fall of European history over the past hundred years. Madagascar is a case in point of how philately teaches history. The French did not finally conquer the island until 1895, although it had been a Protectorate for some time. The native Government issued no stamps of its own, but the resident Europeans of various nationalities did so. The French used them for their soldiers; the British residents issued them through their Vice-Consul; the Norwegian residents also produced stamps. Personally, I never knew before that there was a Norwegian colony in Madagascar sixty years ago.

Everyone whom I have met in the stamp world has been busy urging me to write about stamps as a hobby and a relaxation rather than an investment. It has been pointed out to me that King George V. secured any amount of recreation from his stamp collection, which is still being maintained by Sir John Wilson. Any number of people in the Forces, from colonels or commodores and admirals down to private soldiers, get pleasure out of their hobby. It is estimated that there are 500,000 collectors of stamps in Great Britain. These range from children with collections worth a shilling or two, up to half-a-dozen experts with collections worth £35,000. Of the 500,000 collections, about 250,000 are worth a ten-pound note, 30,000 are worth £100, 1,000 are worth about £1,000, and 200 can be safely valued at £5,000 or more.

One has heard stories of stamp collections being smuggled into this country by rich refugees. Actually, this has been impossible since the collapse of France in June 1940, when it became illegal to import or export stamps except through the British Philatelic Association. The B.P.A. was constituted by the Board of Trade as the official body to control stamps. Their export business is worth several hundred thousand pounds a year to this country. What happens is this. A collector brings his stamps to a dealer and asks him to have them sold in New York for dollars, to be paid in sterling. These are valued and insured, the cost being £3 per cent. if they are sent by boat, and 15s. per cent. if sent by air. You would have thought that the latter insurance would be the more attractive one, but stamp albums weigh a good deal, and recently the cost in postage alone for sending a stamp collection by air mail was £50. Meantime, the money which the collection fetches has to return to this country within six months. If it does not, the Bank of England steps in.

Enemy stamps are not allowed to be owned in this country because they are regarded as enemy goods. So a refugee who enters the country with, let us say, a set of Polish occupation stamps, is unable to sell them unless he can find a black market. The case of the island of St. Pierre Miquelon is somewhat different, and a Royal Air Force pilot who brought a few stamps back from there recently managed to get £30 for his pains. If an Englishman or a foreigner wishes to take his stamp collection to the United States as a hobby, the chances are that the Englishman will not be allowed to do so, but the foreigner will be given permission because he is in transit.

Several of the refugee Governments in this country have increased their funds by making issues of stamps. These include the Free French, the Free Netherlands, and the Poles. The Poles have issued, among others, stamps for their handful of submarines and destroyers. The de Gaullists are issuing Free French stamps, and Mr. Kendrick Harmer told me that his firm has received an order for £1,500 worth as soon as they are printed by Messrs. Waterlow.

WOMEN TAKE OVER THE GASWORKS: Hard and heavy labour to release men

More and more women are taking over men's jobs to release them for the Services. In the London gasworks, women are doing hard and heavy jobs—and doing them well and with enthusiasm. Some are employed in the retort-houses, where they work in a temperature of 100 deg. Fah., shifting red-hot coke as it leaves the retorts; others work as labourers, moving bricks. As coke-loaders, women are filling 2,000 sacks (100 tons) a day, and many women are also working as gas engineers after training, and install fires, cookers, geysers, etc. In this picture a small party of women are seen dismantling a retort-house setting ready for rebuilding. This is done about every six years. Fifty tons of bricks have to be moved—which takes these women a fortnight

In a few weeks there will be a new issue of Free Dutch stamps for the island of Curaçao. I have seen photostat copies of them showing the portrait of the Queen of Holland, aeroplanes, and even aerodromes. They will be immediately worth over £2 a set, and will certainly rise in value. Some countries, like Lichtenstein, added very considerably to their national revenue even in peacetime by the issue of stamps. As a case in point, a 5-franc Lichtenstein stamp issued in 1935 is now worth £10.

What surprises me, as a layman, is that historic dates on which stamps are cancelled are not of particular interest to collectors as a whole. One would have thought that a stamp cancelled in Singapore on the last day that the post office was working would have a rarity value. But apparently this is not the case, though a few collectors specialise in cancellations and cancellation dates. One collection which I saw to-day specialised in various types of cancellation. These included a Maltese cross, a gridiron, a pig, a kicking mule, a raccoon, a steamboat, a ship, and an O.K.

But who is the arbiter of stamp values? The answer is that Stanley Gibbons's catalogue is the philatelist's Bible in this country The same holds good for Scott's, in New York, Michel's in Berlin, and Yvert's in Paris. But it does not follow that the catalogue prices bear any relation to the prices they fetch in the auction-room, particularly at a wholesale auction. Here the average is about one-third or one-half of the catalogue prices. When I asked the managing director of Stanley Gibbons Ltd. if he could explain this phenomenon, he pointed out that the catalogue prices were those that his firm charged clients, though the figure did not allow for discounts. He also pointed out that there is any amount of work to be done by a dealer after he has bought a stamp before he can put it on the market. He will, I gather, match it up with other stamps of the same type, rather like a pearl necklace. I was also assured that, on occasion, a really good stamp in tiptop condition will fetch more than the catalogue price. A stamp not in good condition is one which is too heavily post-marked or partially torn, or thinned—in other words, has been removed carelessly and is therefore somewhat transparent.

If you look in the London Telephone Directory you will find a full-page advertisement of the English firm which describes itself as the world's leading stamp auctioneers. Here are reproductions of valuable stamps, including the world's rarest for which the enormous sum of £7,500 was paid in October 1935. This is the Hind British Guiana 1-cent of 1856. Other figures given are £30,000 realised in auction for the William H. Crocker collection; £27,000 obtained in May 1938 by the sale in private treaty of the "A" collection; and £26,750 obtained by the sale of the Stephen D. Brown collection in November 1939.

To conclude: philatelists are now interested, apparently, in New Guinea air-mail stamps, the current stamps in Aden, the 1938 sets of Ascension, certain Jamaica stamps, the latest Australian provisionals, Leeward Islands (1925), certain Nigerian stamps, Bolivian and Columbian stamps, and the Portuguese "Rowland Hill" series. Rowland Hill, as you will recall, started stamps in 1840, and countries from Mexico to Bulgaria paid tribute to his memory by issuing commemorative sets

PICTURES OF WARTIME INTEREST

SURFACE COAL TO AUGMENT THE COUNTRY'S FUEL SUPPLIES : Marking the top of the coal seam in a trial hole

A GENERAL VIEW OF A SURFACE COAL SEAM IN WARWICKSHIRE : It has been estimated that there is a minimum of 50,000,000 tons of surface coal available for tapping in this country. This would be an appreciable addition to the country's present supplies, and do much to ease the shortage. There are several sites on which this coal is already being excavated at various places, and twenty new sites are to come into operation shortly. It is expected that within a very short time from the opening of a seam where the coal is on the surface the yield will be 500 tons a day. These two pictures were taken in Warwickshire

ALLOTMENTS BEING WORKED ON FAMOUS PLYMOUTH HOE : Rescue workers of Plymouth's Civil Defence organisation have been digging up the Hoe for cultivation. The ground is divided into allotments and let, free of charge, to the men, who are then allowed to take away the produce which they have grown on their allotments. In the background of this picture can be seen the famous Plymouth War Memorial, the Sir Francis Drake Memorial, and the Smeaton Lighthouse Tower

THE PIER AT PLYMOUTH GOES FOR SCRAP IRON : This was destroyed during a "blitz" by German bombers on the city last year. It is now being cut up and all of the iron is being removed. It is estimated that many hundreds of tons of valuable metal will thus become available for munitions of all types—a very valuable contribution to the country's war effort

PALE FENCING TO REPLACE SCRAPPED IRON FENCING : For nearly fifty years Mr. Edgar Winter, of Tonbridge, Kent, has been making chestnut pale fencing. To-day he has to work vigorously to keep pace with the demand. The reason, of course, is the scrapping of iron fencing

BARBED WIRE BY THE TON FOR THE DEFENCE OF BRITAIN : Since the opening of the war, the L.M.S. Railway have run 760 special trains conveying 5,000,000 coils of barbed wire from a single factory in the north-west area. The wire weighed approximately 105,000 tons and, in all, 35,000 wagons have been required to transport it

The World of Books—By Vernon Fane

THRILLS with the PILOTS of the R.A.F.

Charles Graves's Avenging Heroes; An Outstanding Flying Book by J. V. Hewes; A. E.W. Mason's Eighteenth-Century Story; Gladys Mitchell's New Crime Story; An Informal Discourse on Humorous Poetry in England

IF *The Thin Blue Line* was as good a book about the incomparable R.A.F. as any in this war—and I am one of tens of thousands who think it was—then I have no hesitation in saying that THE AVENGERS (Hutchinson. 7s. 6d.) is even better. Mr. Charles Graves diffidently presents his sequel with the modest disclaimer of the virtues of sequels as such.

He need not worry about that, for the R.A.F. has provided him with a magnificent progression of glorious encounter since, in January 1941, he first introduced us to his now famous seven characters in search of their wings. Tommy Halton, Henry Ireland, Paddy Tallard, Jock Riddell, Ginger Pleasanton, Kit Crokart and Hugh Calverley are all now stooging about in crates which, at that now seemingly distant date, were scarcely off the drawing-board. Gradually, inexorably, the R.A.F. are taking their rightful command of the air, and the odds in men and material are no longer with the *Luftwaffe*. The battle area now extends to the seven seas, and we take it almost as a matter of routine that Ginger Pleasanton should be taking his Hurricane off the deck of a ship and that Hugh Calverley and Jock Riddell should have been strafing the Wop, and that one of them may have "bought it" in the cut-and-run episode of the Salmon and Gluckstein.

Charles Graves declares that he is not a professional novelist, and be that as it may, I can declare that he is a first-class reporter. Not only does he know his subject down to every detail gathered from official and unofficial sources, but there is a gem of a description, quite casually inserted into his foreword, of one Bob Beazley, which is little more than a thumbnail sketch yet an outstanding character study. I shall be surprised if *The Avengers* does not out-distance in popularity *The Thin Blue Line*.

Another flying-book which deserves the highest recommendation is THE HIGH COURTS OF HEAVEN (Peter Davies. 7s. 6d.). The author, whom I must call Mr. J. V. Hewes because he modestly does not append his rank, is obviously himself a pilot of considerable experience.

His story, told as fiction, is of four young fighter pilots in the Battle of Britain. Their station was in the south-east corner of England during those fateful weeks when the world's destiny rested with that handful of young men, manning those pitifully few machines, and to whom the Prime Minister has paid his unforgettable tribute.

Mr. Hewes has a simple and direct style, completely devoid of literary frills, which throws into almost startling relief the sustained drama of his narrative. Not only do Oliver, Lloyd, Chacksfield and Barham become living personalities to the reader, but the technicalities of their operational flights, told with authoritative objectivity, carry him into actual combat with them. I have read hundreds of books on flying, but have never met anything to equal the dramatic tension of Oliver's last fight over Capel with Manfred von Rothe. Nor, for that matter, do I ever want to read anything more poignant than the episode of Mrs. Hughes, who came to the mess to "leave a little message for my husband."

I think, I hope, I have said enough to indicate that *The High Courts of Heaven* is quite an exceptional and outstanding book.

To-day's realities are no concern of Mr. A. E. W. Mason's, who, with MUSK AND AMBER (Hodder & Stoughton. 8s. 6d.), has given his readers a magnificent and brilliantly-coloured story of the eighteenth century. Here is a world of great houses and English milords travelling in state, of duels and operas and glittering encounters in Venice and Naples and England. And here, under all this deft and delicate embroidery, is a first-rate adventure story by the master storyteller of our time.

Looking back over the impressive list of Mr. Mason's output during the past thirty years or more, one realises what a standard of excellence he has kept for himself, and not only kept but improved on. *The Four Feathers* is now a classic of adventure writing, and *At the Villa Rose* a classic of detective fiction, but they have been followed, and in the last few years, by others equally strong and vivid, and the present book has the vigour and imagination and a technique far more effortless than his earliest work.

The "musk and amber in revenge" is the theme here and, in keeping with the whole tenor of the book, it is revenge in the grand manner, with moonlight on cold steel, and lace ruffles stained with life-blood. But that is beginning with the end, and the story itself is so little banal that it is worthy of far more than the casual reading of the average seeker after romance.

BRITISH WAR CORRESPONDENTS GOING ABOUT THEIR DUTIES: A picture taken during a conference in the Northern Command, at which Lieut.-General T. R. Eastwood, C.B., D.S.O., M.C., the Army Commander, addressed provincial war correspondents accredited to his Headquarters. Other senior officers were also present. The war correspondent of to-day wears uniform, but carries no indications of rank on his shoulder

Julian, Earl of Linchcombe, had as a boy of twelve a voice of extraordinary beauty and strength which was, in spite of his childish ambitions to be an old Admiral Timbertoes, striding his own quarter-deck, to be one of the two factors that shaped his life. The other and crueller was the treachery of his older cousin who, after Julian's disappearance, contrived with a bunch of ruffians in Naples, inherited his title and estates. Julian suffered the barbaric fate of those days and became eventually one of the most famous of the singers in the new art of opera.

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With money and fame and great personal beauty, he planned his revenge for his irrevocably-shattered life, and was finally able to achieve it, in the setting of which he had been dreaming for years. But before this climax we follow him through a score of adventures in the Venice of the Doges, with the dreaded Messer-Grande and the *sbirri*, when quick death or life imprisonment without trial were commonplaces, to be feared from the word of a jealous woman, or the whim of a capricious but powerful man.

This is Mr. Mason at his superb best, holding excitement at such a pace that one can hardly turn the pages fast enough, and colouring the whole plot with his inimitable sense of the pictorial and the dramatic.

One could scarcely find a less promising background for chills and thrills, except those of a purely academic order, than has been chosen by Miss Gladys Mitchell for her new detective-story. LAURELS ARE POISON (Michael Joseph. 8s. 6d.) has its murders and attacks and ghostly voices certainly, but all in or around the precincts of a Yorkshire training-college, where young women are taught to teach still younger ones in a normal atmosphere of such headmistressly jollity and japes as has sometimes shown itself, like a cloven but elastic-sided boot, in some of Miss Sayers's works.

However, here is a fine field of deduction for fans, a very well-contrived mystery, with clues that are subtly introduced and logically proved, and flashes of humour that emerge almost in spite of the determined good humour of the girls.

The redoubtable Mrs. Bradley makes her reappearance and, although I have always felt there was something a little indecorous about a woman detective, she is certainly an efficient one, with a taste for stimulants that Holmes himself could hardly have bettered. The lady solves the case with a little brisk and valorous assistance from her young friends, and Miss Mitchell wins full marks for having been the first to introduce a note of pure horror into the lives and deaths of some of the most respectable characters in fiction.

Dr. Cyril Alington, whom we know to have a very pretty wit of his own, has given us a new book for which we should (and will) all be grateful; it is in the nature of an informal discourse on humorous poetry in England, with a very generous number of examples. POETS AT PLAY (Methuen. 6s.) was designed, says Dr. Alington, not for friends such as Cicero sought, "in whose company he might indulge in learned laughter . . . rather for friends like those of Mr. Peter Magnus who, as you will remember, were entertained with considerable facility."

Lewis Carroll and A. P. Herbert and Hilaire Belloc are, as one would have expected, fully represented, but the Dean has also culled from the less expected sources of Keats and Tennyson and Oliver Goldsmith, and there is a superb parody by Swinburne, of his own style:

"From the depth of the dreamy decline of the dawn through a notable nimbus of nebulous moonshine,
Pallid and pink as the palm of the flagflower that flickered with fear of the flies as they float . . ."

For those who appreciate the limerick form, here is one by Mr. W. L. Donaldson that is worthy of Lear:

There was a young fellow called Hover,
Who bowled twenty-three wides in one over,
Which had never been done
By a clergyman's son
On a Thursday in August at Dover.

Examples from W. S. Gilbert one also expects, and one is not disappointed, but here is a beauty from Mr. A. C. Hilton, hitherto an unfamiliar name to me, but now to be unforgettable. It deals, effectively, in my opinion, with a candidate in a university examination:

In the crown of his cap
Were the Furies and Fates,
And a delicate map
Of the Dorian States:
When they looked in his palms, which were hollow, they found
What is common in palms—that is, dates.

I could quote interminably, but must stop with one more, unhappily anonymous:

There was a young fellow of Potsdam
Who said "I 'm all covered with speckles, bother!"
When they said "Cuticura
Will keep your skin purer,"
He replied, "I shall have to use a great deal, confound it all."

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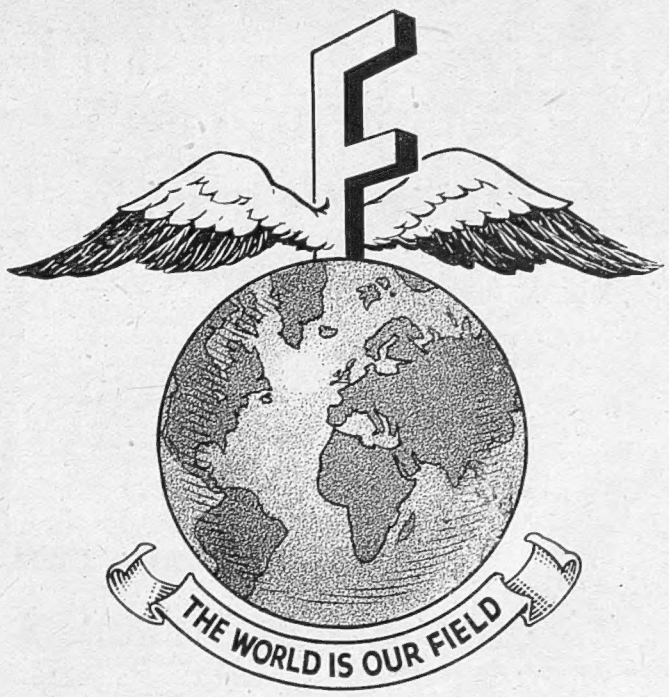

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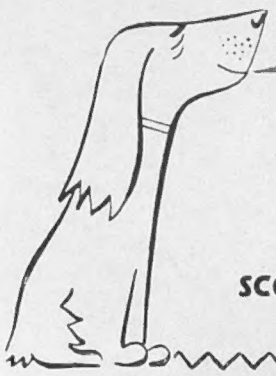

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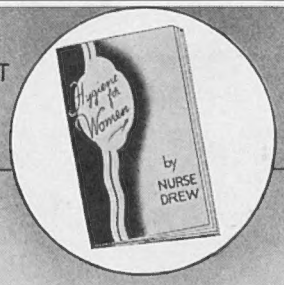

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